STIC Search Report
EIC 1700

USPTO

STIC Database Tracking Number: 146879

TO:	From:
Sin J Lee **Location: REM 9D60** **Art Unit : 1752** **March 14, 2005** **Case Serial Number: 09/992560**	**Kathleen Fuller** **Location: EIC 1700** **REMSEN 4B28** **Phone: 571/272-2505** **Kathleen.Fuller@uspto.gov**

Search Notes

Did this search with 146881 as the starting materials are the same.

146879

146881

"POSA" Search.

sira
Search and Information Resources Administration

STIC Search Report
EIC 1700

STIC Database Tracking Number: 146881

TO: Sin J Lee
Location: REM 9D60
Art Unit : 1752
March 14, 2005

Case Serial Number: 09/992560

From: Kathleen Fuller
Location: EIC 1700
REMSEN 4B28
Phone: 571/272-2505
Kathleen.Fuller@uspto.gov

Search Notes

Did this with 146879 as the starting materials are the same.

STIC Search Results Feedback Form

USPTO

EIC17000

Questions about the scope or the results of the search? Contact ***the EIC searcher or contact:***

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 1713*
- *Relevant prior art **found**, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
  (journal articles, conference proceedings, new product announcements etc.)

- *Relevant prior art **not found:***
  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28

sira
Search and Information Resources Administration

Access DB# 146879

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Sin J Lee Examiner #: 76060 Date: 2-24-05
Art Unit: 1752 Phone Number 30 2-1333 Serial Number: 09/992,560
Mail Box and Bldg/Room Location: 4D60 (Rem.) Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract..

Title of Invention: B.b attached

Inventors (please provide full names): _____

_____

Earliest Priority Filing Date: _____ Pat. & T.M. Office

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

1D

Plz. Search for the polymer shown in Fig. 1

****

STAFF USE ONLY

Searcher: K. Fuller	**Type of Search**	**Vendors and cost where applicable**	
Searcher Phone #:	NA Sequence (#)	STN ✓	
Searcher Location:	AA Sequence (#)	Dialog	
Date Searcher Picked Up:	Structure (#) 2	Questel/Orbit	
Date Completed: 3/14/05	Bibliographic	Dr.Link	
Searcher Prep & Review Time: 20	Litigation	Lexis/Nexis	
Clerical Prep Time:	Fulltext	Sequence Systems	
Online Time: 20	Patent Family	WWW/Internet	
	Other	Other (specify)	

PTO-1590 (8-01) did c 14 6881

Access DB# 146881

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Sin J. Lee Examiner #: 76060 Date: 2/24/05
Art Unit: 1752 Phone Number 30 2-1333 Serial Number: 09/992,560
Mail Box and Bldg/Room Location: 9D60 (Rem) Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: B:b attached.

Inventors (please provide full names):

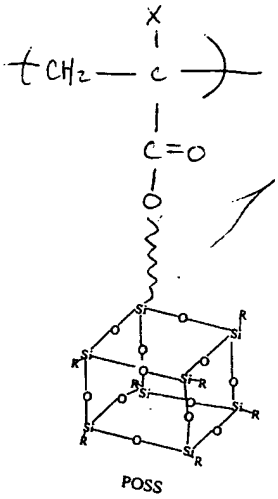
Earliest Priority Filing Date: Pat. & T.M. Office

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

E- acrylate or methacrylate

Please search for a polymer that comprises polyhedral oligosilsesquioxane component

For example,



(X=H or -CH3)

This portion can be a single bond or any other linkage group (like alkyl SP

POSS

The polyhedral oligosilsesquioxane component is sometimes referred as "POSS"

* R = alkyl cycloalkyl, aryl, alkenyl, alkynyl, aralkyl, aralkenyl, heteroall heterocyclo alkyl (these can be substituted

****

STAFF USE ONLY

Searcher: K. Fuller
Searcher Phone #:
Searcher Location:
Date Searcher Picked Up:
Date Completed: 3/14/05
Searcher Prep & Review Time: 20
Clerical Prep Time:
Online Time: 20

Type of Search

NA Sequence (#)
AA Sequence (#)
Structure (#) 2
Bibliographic
Litigation
Fulltext
Patent Family
Other

Vendors and cost where applicable

STN ✓
Dialog
Questel/Orbit
Dr.Link
Lexis/Nexis
Sequence Systems
WWW/Internet
Other (specify)

PTO-1590 (8-01) did with 146879

```
=>  file reg
FILE 'REGISTRY' ENTERED AT 17:52:55 ON 14 MAR 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:   13 MAR 2005  HIGHEST RN 845467-46-1
DICTIONARY FILE UPDATES:  13 MAR 2005  HIGHEST RN 845467-46-1

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

Crossover limits have been increased.  See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=> file hcaplus
FILE 'HCAPLUS' ENTERED AT 17:53:00 ON 14 MAR 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)
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FILE COVERS 1907 - 14 Mar 2005  VOL 142 ISS 12
FILE LAST UPDATED: 13 Mar 2005  (20050313/ED)

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

=> d que
L84                 STR
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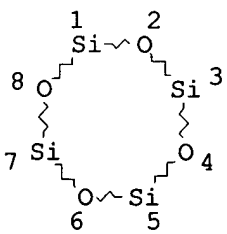
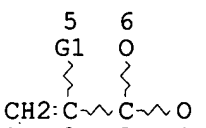


3231 polymer structures from this query

NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE
L86 SCR 2043
L88 3231 SEA FILE=REGISTRY SSS FUL L84 AND L86
L92 STR 2



881 polymers with structure 1 + 2 as starting monomers

VAR G1=H/CH3
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 6

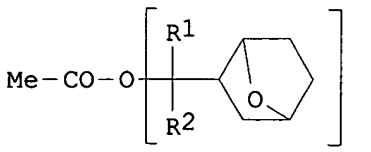
STEREO ATTRIBUTES: NONE
L94 881 SEA FILE=REGISTRY SUB=L88 SSS FUL L92
L95 590 SEA FILE=HCAPLUS ABB=ON L94
L96 249 SEA FILE=HCAPLUS ABB=ON L95(L)?RESIST?
L97 32 SEA FILE=HCAPLUS ABB=ON L96 AND PHOTOG?/SC

=> d 197 bib abs ind hitstr 1-32

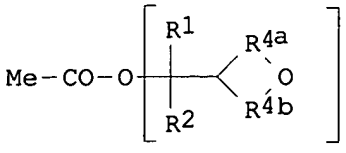
L97 ANSWER 1 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2005:135758 HCAPLUS
DN 142:228725
TI Oxygen plasma-resistant radiation-sensitive resists, their patterning, and macromolecules therefor
IN Hatakeyama, Jun; Takeda, Takanobu; Watanabe, Osamu
PA Shin-Etsu Chemical Industry Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 72 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005042085	A2	20050217	JP 2004-14354	20040122
PRAI	JP 2003-21416	A	20030130		
	JP 2003-194033	A	20030709		

GI



I



II

AB The macromols. have Si-bearing repeating unit and unit (i) MeCO2[CR1R2(A1R3)] [A1 = (tetrahydro)furandiyl, oxanorbornanediyl; R1, R2 = C1-10 hydrocarbyl; R3 = H, C1-10 hydrocarbyl], (ii) I (R'1, R'2 = C1-10 hydrocarbyl), and/or (iii) II [R''1, R''2 = C1-10 hydrocarbyl; C1-10 hydrocarbyl; R4a, R4b = single bond, C1-4 alk(ne)ylene within total C number of 3-60]. Pos.-working (chemical-amplified) resists containing the macromols., and their patterning with ≤300-nm high-energy or electron beams are also claimed. The resist patterns are resistant against O plasma and Cl- or Br-containing gas etchants.

IC ICM C08F230-08
ICS G03F007-039; G03F007-075; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 38

ST silicon contg photoresist oxygen plasma resistance; halo etchant resistant silicon contg photoresist; tetrahydrofuranyl oxanorbornanyl methacrylate resist amplified pos; electron beam resist heptacyclopentylpentacyclooctasiloxanylpropyl methacrylate

IT Electron beam resists
(Si- and prescribed cyclic group-containing polymers for oxygen plasma-resistant pos. photoresists)

IT Resists
(etching; Si- and prescribed cyclic group-containing polymers for oxygen plasma-resistant pos. photoresists)

IT Photoresists
(oxygen plasma-resistant radiation-sensitive resists, their patterning, and polymers therefor)

IT 102-82-9, Tributylamine 3002-18-4 449165-34-8
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(dissoln. inhibitors; Si- and prescribed cyclic group-containing polymers for oxygen plasma-resistant pos. photoresists)

IT 144317-44-2, Triphenylsulfonium perfluorobutanesulfonate 194999-82-1, Diphenyliodonium nonafluorobutanesulfonate
RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)
(photoacid generators; Si- and prescribed cyclic group-containing polymers for oxygen plasma-resistant pos. photoresists)

IT 843647-82-5P 843647-84-7P 843647-85-8P **843647-86-9P**
843647-87-0P 843647-88-1P **843647-89-2P**
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**photoresists**; Si- and prescribed cyclic group-containing polymers for oxygen plasma-**resistant** pos. **photoresists**)

IT **843647-86-9P 843647-87-0P 843647-89-2P**
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**photoresists**; Si- and prescribed cyclic group-containing polymers for oxygen plasma-**resistant** pos.

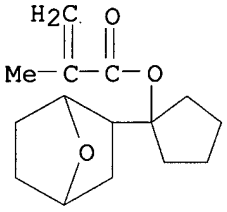
photoresists)

RN 843647-86-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with ethenylheptamethylcyclotetrasiloxane and 2,5-furandione (9CI) (CA INDEX NAME)

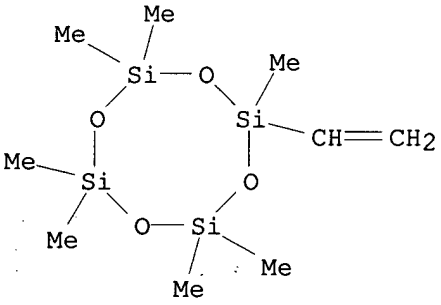
CM 1

CRN 676456-72-7
CMF C15 H22 O3



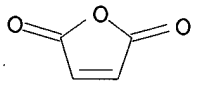
CM 2

CRN 3763-39-1
CMF C9 H24 O4 Si4



CM 3

CRN 108-31-6
CMF C4 H2 O3

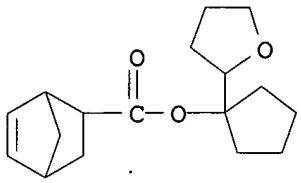


RN 843647-87-0 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(tetrahydro-2-furanyl)cyclopentyl ester, polymer with ethenylheptamethylcyclotetrasiloxane, 2,5-furandione and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

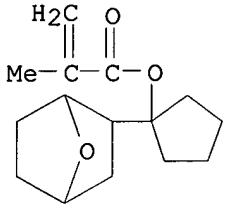
CM 1

CRN 676456-73-8
CMF C17 H24 O3



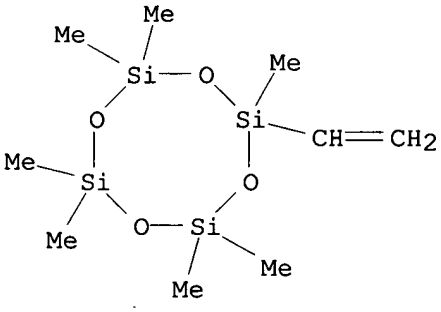
CM 2

CRN 676456-72-7
CMF C15 H22 O3



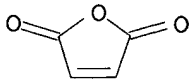
CM 3

CRN 3763-39-1
CMF C9 H24 O4 Si4



CM 4

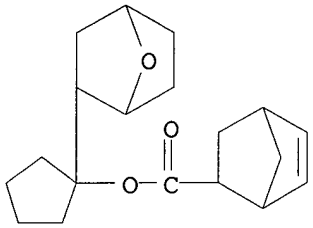
CRN 108-31-6
CMF C4 H2 O3



RN 843647-89-2 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

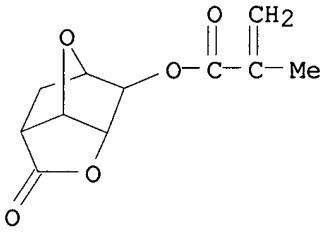
CM 1

CRN 676456-74-9
CMF C19 H26 O3



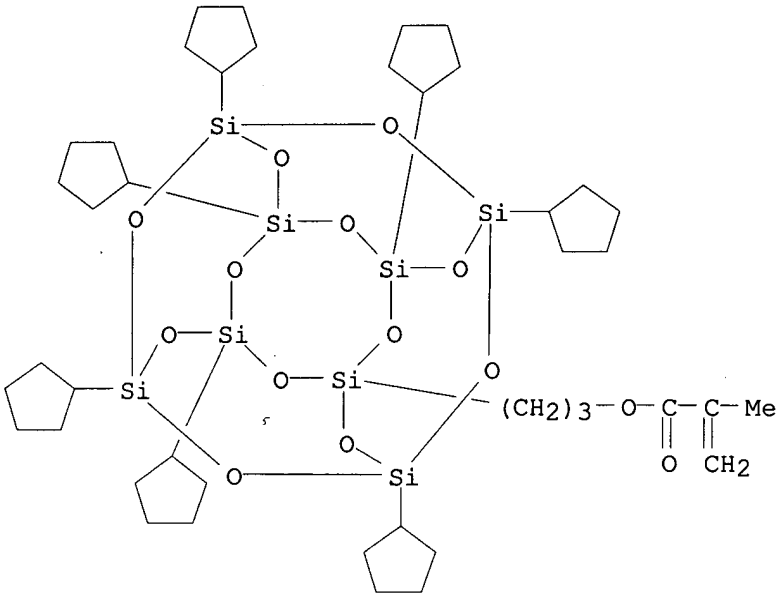
CM 2

CRN 274248-05-4
CMF C11 H12 O5



CM 3

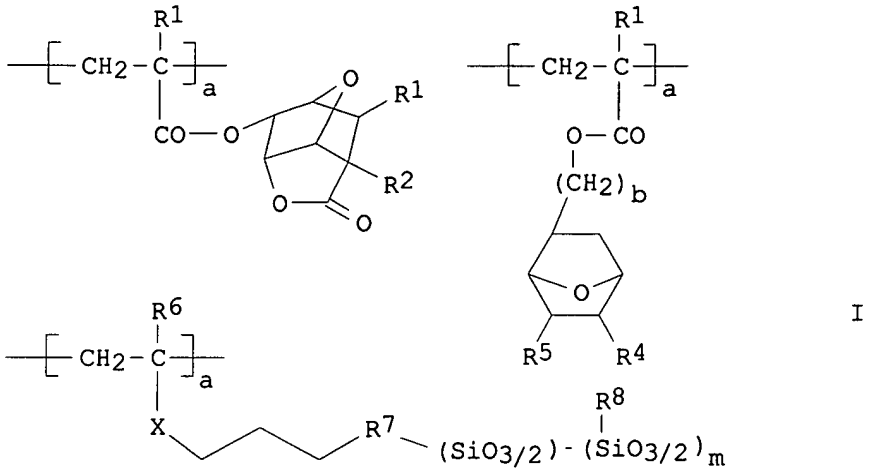
CRN 169391-91-7
CMF C42 H74 O14 Si8



L97 ANSWER 2 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2005:33606 HCAPLUS
DN 142:103181
TI Acrylic polymers, their chemically amplified positive photoresists with high resolution and sensitivity and suppressed line edge roughness, and photolithography using them
IN Hatakeyama, Jun; Watanabe, Takeshi; Takeda, Takanobu
PA Shin-Etsu Chemical Industry Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 58 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005008765	A2	20050113	JP 2003-174894	20030619
PRAI	JP 2003-174894		20030619		

GI



I

AB The acrylic polymers contain repeating units I [R1, R6 = H, Me, F, CF3, CN, CH2CO2R12, CH2OR13; R2 = H, Me, CN; R3 = H, ester; R4, R5 = H, ester, lactone-containing group; R8 = H, C1-10 alkyl, fluorinated alkyl; R7 = single bond, (SiR9R10R11)n; R9, R10 = C1-10 alkyl; R11 = single bond, O, C1-4 alkylene; X = ester, ether; a, b ≥0; c >0; 0 < (a + b)/(a + b + c) < 0.8; 0 < c/(a + b + c) < 0.5; m = 4-40; n = 1-20; p = 0-2; R12 = C1-4 alkyl; R13 = H, C1-4 alkyl, C1-4 acyl] and other repeating units that increase alkali solubility of the polymers in the presence of acids. The photolithog. may involve etching with O plasma or halogen gases containing Cl or Br.

IC ICM C08F230-08
ICS G03F007-039; G03F007-075

CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 38

ST acrylic polymer oxonorbornane polyhedral oligosilsesquioxane photoresist resoln; sensitivity acrylic pos photoresist chem amplification POSS

IT Positive photoresists
(UV; acrylic polymers having oxonorbornane and polyhedral oligosilsesquioxane pendants for pos. photoresists with high resolution and suppressed line edge roughness)

IT Photolithography
(acrylic polymers having oxonorbornane and polyhedral oligosilsesquioxane pendants for pos. photoresists with high resolution and suppressed line edge roughness)

IT Fluoropolymers, preparation
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acrylic; acrylic polymers having oxonorbornane and polyhedral oligosilsesquioxane pendants for pos. photoresists with high resolution and suppressed line edge roughness)

IT **819837-18-8P 819837-20-2P 819837-22-4P**
819837-23-5P 819837-25-7P 819837-27-9P
819837-29-1P 819837-31-5P 819837-32-6P
819837-34-8P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acrylic polymers having oxonorbornane and polyhedral

oligosilsesquioxane pendants for pos. **photoresists** with high resolution and suppressed line edge roughness)

IT 102-71-6, Triethanolamine, uses 3002-18-4 211919-60-7 449165-34-8
RL: TEM (Technical or engineered material use); USES (Uses)
(base; acrylic polymers having oxonorbornane and polyhedral oligosilsesquioxane pendants for pos. photoresists with high resolution and suppressed line edge roughness)

IT 409321-21-7 409321-23-9
RL: TEM (Technical or engineered material use); USES (Uses)
(dissolving inhibitor; acrylic polymers having oxonorbornane and polyhedral oligosilsesquioxane pendants for pos. photoresists with high resolution and suppressed line edge roughness)

IT 7726-95-6, Bromine, uses 7782-44-7, Oxygen, uses 7782-50-5, Chlorine, uses 10294-34-5, Trichloroborane
RL: NUU (Other use, unclassified); USES (Uses)
(etching with; acrylic polymers having oxonorbornane and polyhedral oligosilsesquioxane pendants for pos. photoresists with high resolution and suppressed line edge roughness)

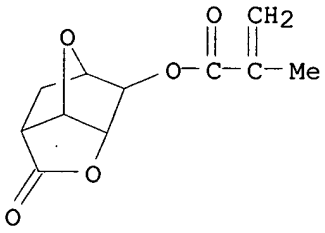
IT 144317-44-2 348137-47-3
RL: CAT (Catalyst use); USES (Uses)
(photoacid generator; acrylic polymers having oxonorbornane and polyhedral oligosilsesquioxane pendants for pos. photoresists with high resolution and suppressed line edge roughness)

IT **819837-18-8P 819837-20-2P 819837-22-4P**
819837-23-5P 819837-25-7P 819837-27-9P
819837-29-1P 819837-31-5P 819837-32-6P
819837-34-8P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acrylic polymers having oxonorbornane and polyhedral oligosilsesquioxane pendants for pos. **photoresists** with high resolution and suppressed line edge roughness)

RN 819837-18-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-ethyltricyclo[3.3.1.13,7]dec-2-yl ester, polymer with 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate and hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

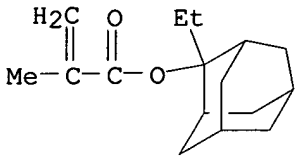
CM 1

CRN 274248-05-4
CMF C11 H12 O5



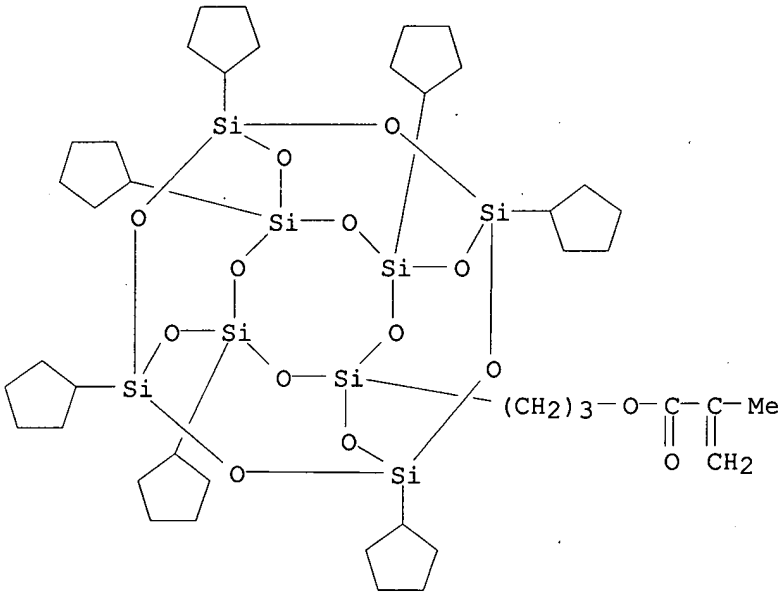
CM 2

CRN 209982-56-9
CMF C16 H24 O2



CM 3

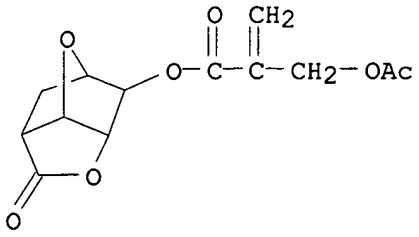
CRN 169391-91-7
CMF C42 H74 O14 Si8



RN 819837-20-2 HCAPLUS
CN 2-Propenoic acid, 2-[(acetyloxy)methyl]-, hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl ester, polymer with 2-ethyltricyclo[3.3.1.13,7]dec-2-yl 2-methyl-2-propenoate and 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

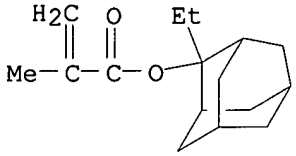
CM 1

CRN 819837-19-9
CMF C13 H14 O7



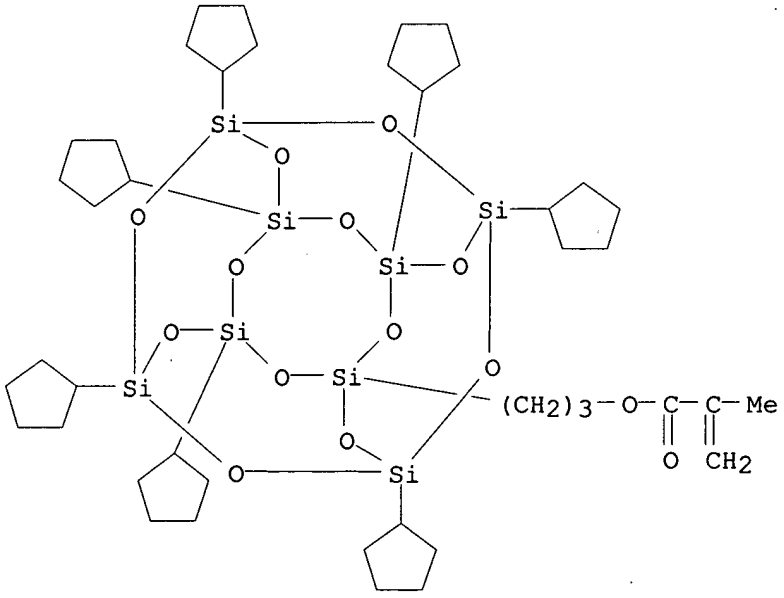
CM 2

CRN 209982-56-9
CMF C16 H24 O2



CM 3

CRN 169391-91-7
CMF C42 H74 O14 Si8

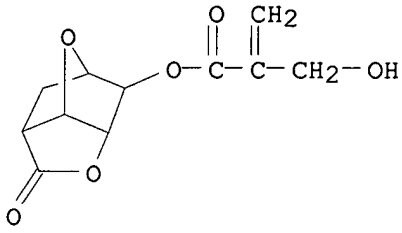


RN 819837-22-4 HCAPLUS
CN 2-Propenoic acid, 2-(hydroxymethyl)-, hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl ester, polymer with 2-ethyltricyclo[3.3.1.13,7]dec-2-yl

2-methyl-2-propenoate and 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

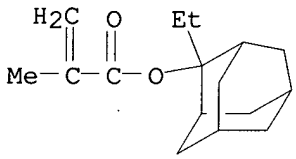
CM 1

CRN 819837-21-3
CMF C11 H12 O6



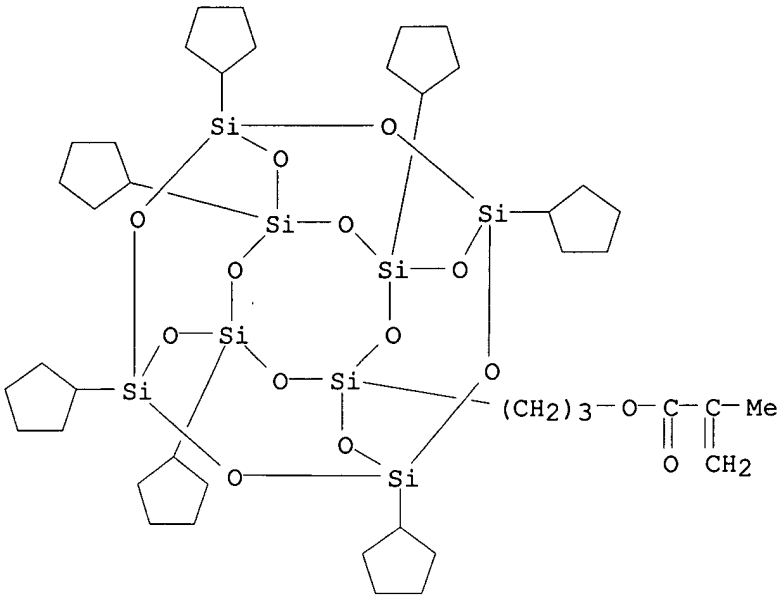
CM 2

CRN 209982-56-9
CMF C16 H24 O2



CM 3

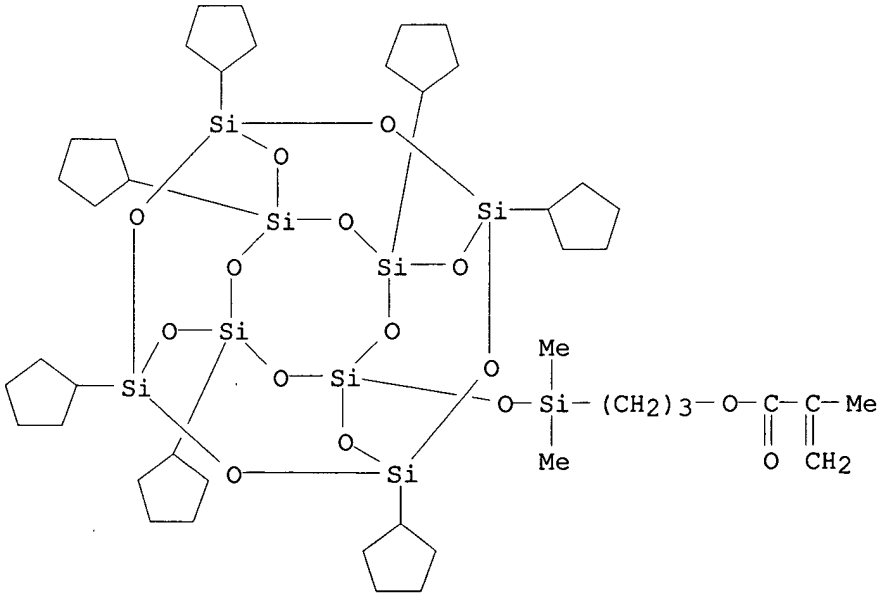
CRN 169391-91-7
CMF C42 H74 O14 Si8



RN 819837-23-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-ethyltricyclo[3.3.1.13,7]dec-2-yl ester, polymer with 3-[[(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)oxy]dimethylsilyl]propyl 2-methyl-2-propenoate and hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

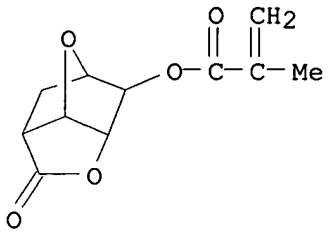
CM 1

CRN 312693-41-7
CMF C44 H80 O15 Si9



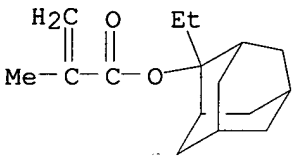
CM 2

CRN 274248-05-4
CMF C11 H12 O5



CM 3

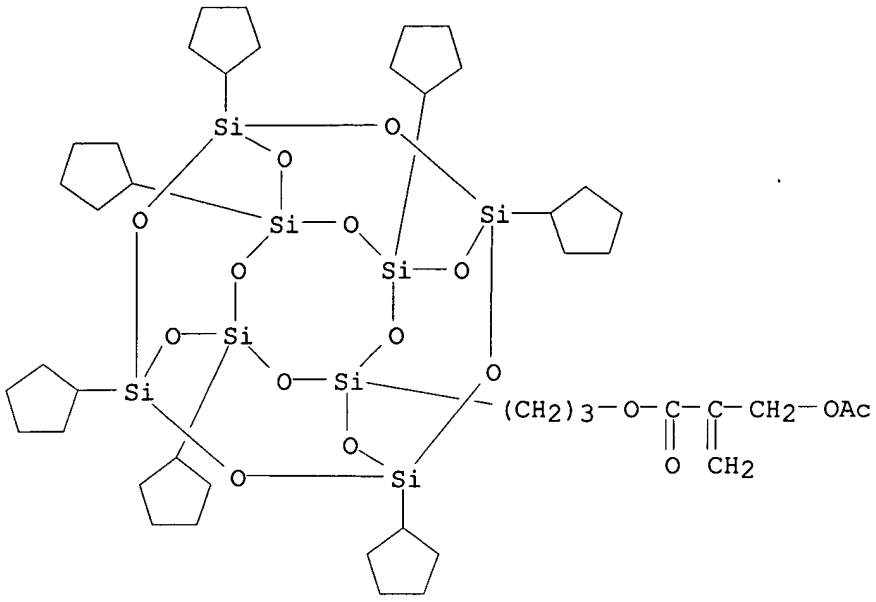
CRN 209982-56-9
CMF C16 H24 O2



RN 819837-25-7 HCAPLUS
CN 2-Propenoic acid, 2-[(acetyloxy)methyl]-, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with 2-ethyltricyclo[3.3.1.13,7]dec-2-yl 2-methyl-2-propenoate and hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

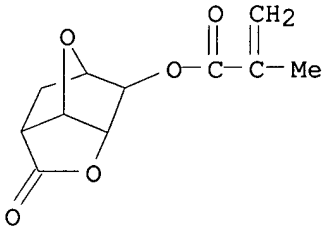
CM 1

CRN 819837-24-6
CMF C44 H76 O16 Si8



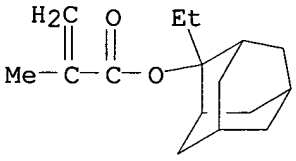
CM 2

CRN 274248-05-4
CMF C11 H12 O5



CM 3

CRN 209982-56-9
CMF C16 H24 O2

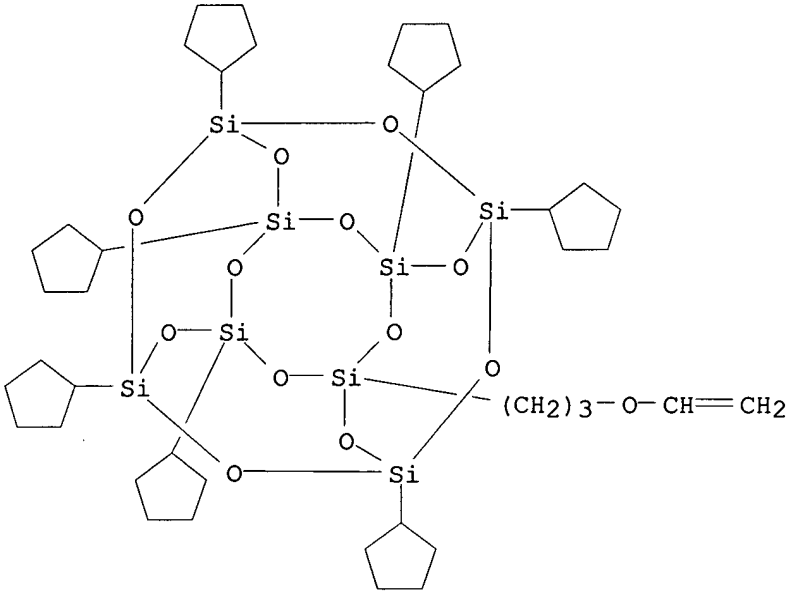


RN 819837-27-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-ethyltricyclo[3.3.1.13,7]dec-2-yl ester, polymer with heptacyclopentyl[3-(ethenyloxy)propyl]pentacyclo[9.5.1.13,9.1

5,15.17,13]octasiloxane and hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

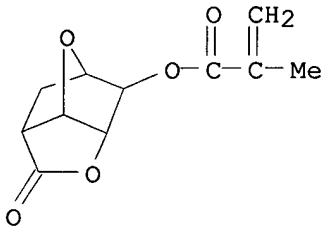
CM 1

CRN 819837-26-8
CMF C40 H72 O13 Si8



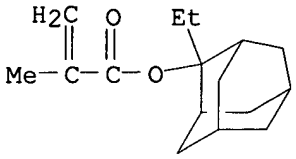
CM 2

CRN 274248-05-4
CMF C11 H12 O5



CM 3

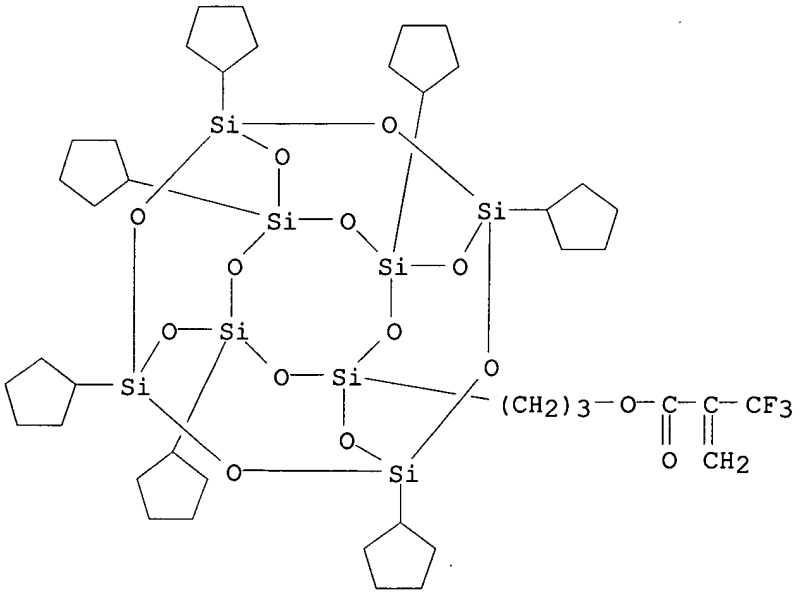
CRN 209982-56-9
CMF C16 H24 O2



RN 819837-29-1 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-ethyltricyclo[3.3.1.13,7]dec-2-yl ester, polymer with 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-(trifluoromethyl)-2-propenoate and hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

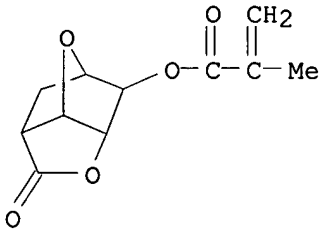
CM 1

CRN 819837-28-0
CMF C42 H71 F3 O14 Si8



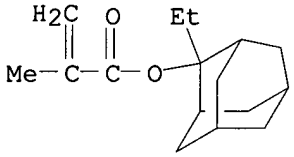
CM 2

CRN 274248-05-4
CMF C11 H12 O5



CM 3

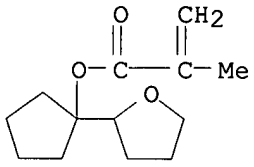
CRN 209982-56-9
CMF C16 H24 O2



RN 819837-31-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate and 1-(tetrahydro-2-furanyl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

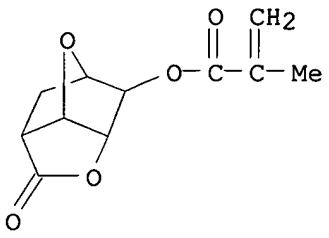
CM 1

CRN 819837-30-4
CMF C13 H20 O3



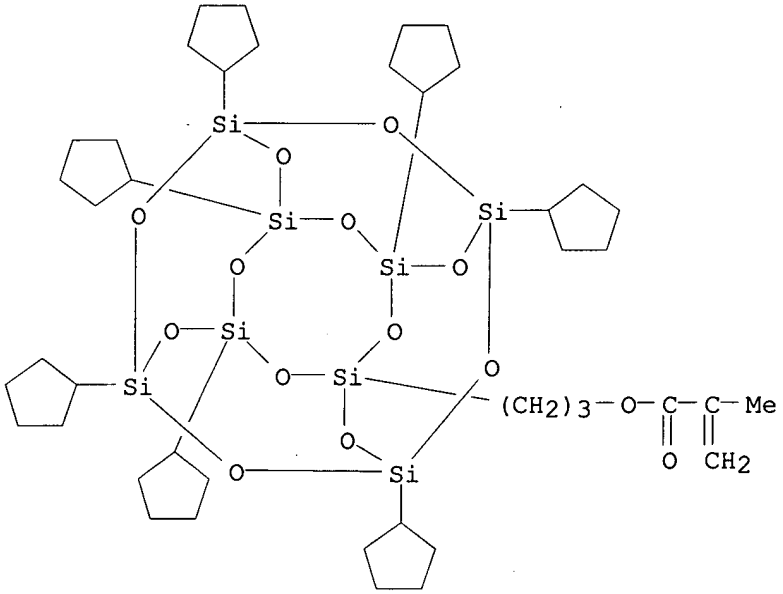
CM 2

CRN 274248-05-4
CMF C11 H12 O5



CM 3

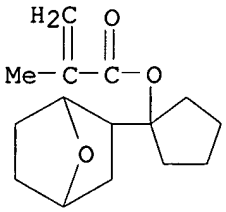
CRN 169391-91-7
CMF C42 H74 O14 Si8



RN 819837-32-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

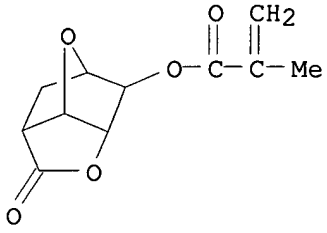
CM 1

CRN 676456-72-7
CMF C15 H22 O3



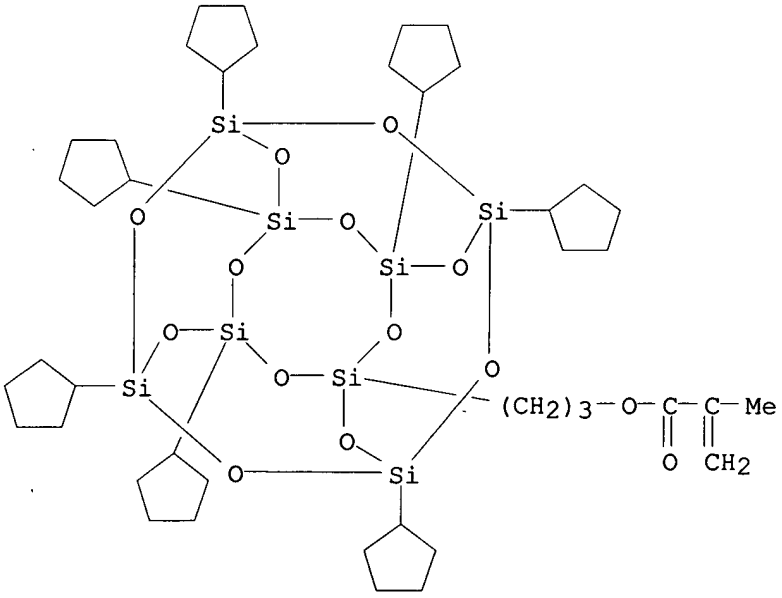
CM 2

CRN 274248-05-4
CMF C11 H12 O5



CM 3

CRN 169391-91-7
CMF C42 H74 O14 Si8

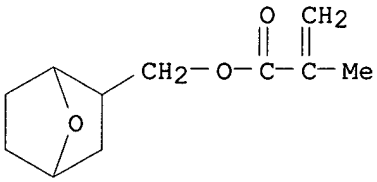


RN 819837-34-8 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-ethyltricyclo[3.3.1.13,7]dec-2-yl ester, polymer with 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate and 7-oxabicyclo[2.2.1]hept-2-ylmethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

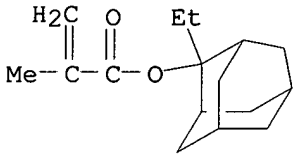
CM 1

CRN 819837-33-7
CMF C11 H16 O3



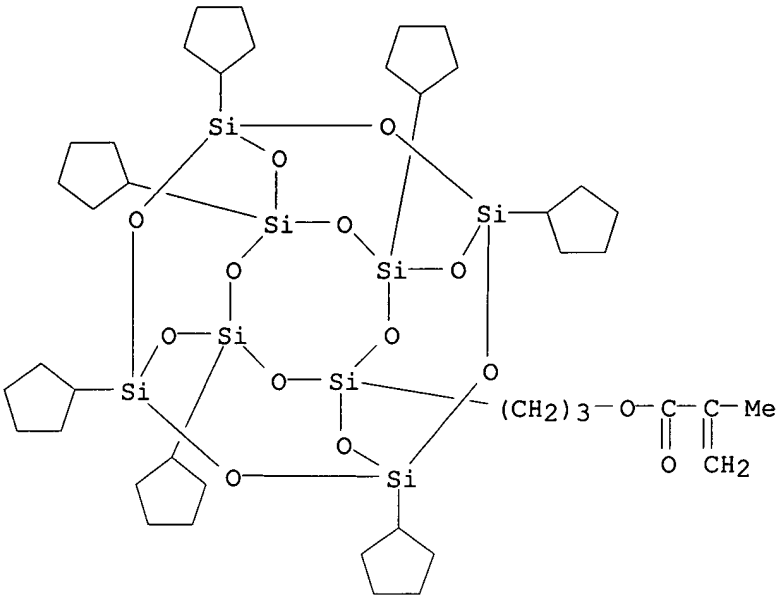
CM 2

CRN 209982-56-9
CMF C16 H24 O2



CM 3

CRN 169391-91-7
CMF C42 H74 O14 Si8



L97 ANSWER 3 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:1036753 HCAPLUS
DN 142:30014
TI Silicon-containing polymer, resist composition and patterning process
IN Hatakeyama, Jun; Takeda, Takanobu
PA Japan
SO U.S. Pat. Appl. Publ., 38 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004242821	A1	20041202	US 2004-853783	20040526
	JP 2004352743	A2	20041216	JP 2003-148656	20030527
PRAI	JP 2003-148656	A	20030527		

AB Novel silicon-containing polymers are provided comprising recurring units having a POSS pendant and units which improve alkali solubility under the action of an acid. Resist compns. comprising the polymers are sensitive to high-energy radiation and have a high sensitivity and resolution at a wavelength of up to 300 nm and improved resistance to oxygen plasma etching.
IC ICM G03F007-004
ICS C08F122-04; C08F222-04
NCL 526250000; 430270100; 430322000; 430330000; 526271000; 526279000
CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 38
ST silicon polymer patterning process photolithog photoresist etching resistance
IT Photolithography
Photoresists
(silicon-containing polymer, resist composition and patterning process)
IT Fluoropolymers, properties

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(silicon-containing polymer, resist composition and patterning process)

IT 802917-18-6P 802917-19-7P 802917-20-0P 802917-21-1P 802917-22-2P 802917-23-3P **802917-24-4P** 802917-25-5P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(silicon-containing polymer, **resist** composition and patterning process)

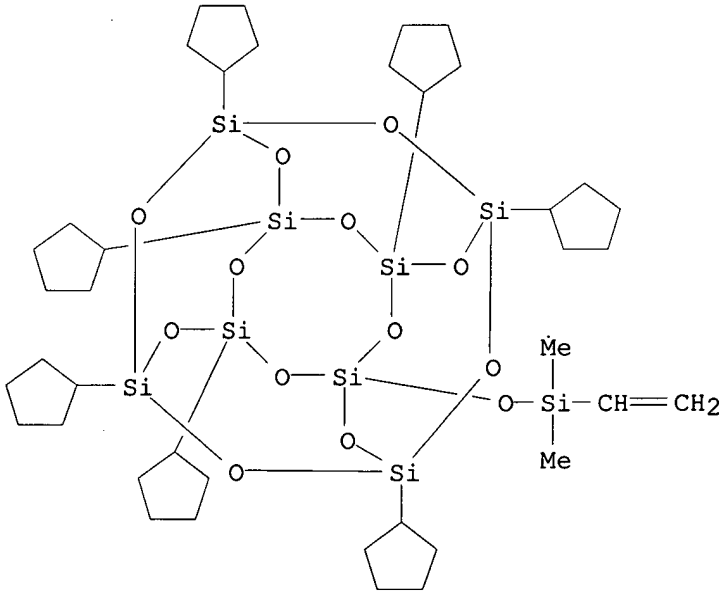
IT **802917-24-4P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(silicon-containing polymer, **resist** composition and patterning process)

RN 802917-24-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-ethyltricyclo[3.3.1.13,7]dec-2-yl ester, polymer with heptacyclopentyl[(ethenyldimethylsilyl)oxy]pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane and methyl ethenesulfonate (9CI) (CA INDEX NAME)

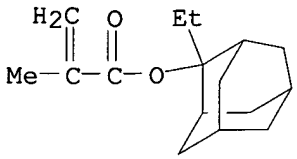
CM 1

CRN 312693-40-6
CMF C39 H72 O13 Si9



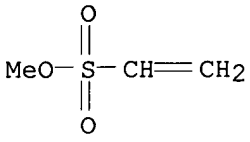
CM 2

CRN 209982-56-9
CMF C16 H24 O2



CM 3

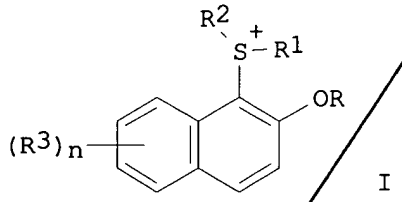
CRN 1562-31-8
CMF C3 H6 O3 S



L97 ANSWER 4 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:995698 HCAPLUS
DN 141:429658
TI Photoacid generators for chemically amplified resist compositions and patterning process
IN Ohsawa, Youichi; Kobayashi, Katsuhiro; Kaneko, Tatsushi
PA Japan
SO U.S. Pat. Appl. Publ., 29 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004229162	A1	20041118	US 2004-842719	20040511
	JP 2004334060	A2	20041125	JP 2003-132523	20030512
PRAI	JP 2003-132523	A	20030512		

OS MARPAT 141:429658
GI



I

AB Disclosed are photoacid generators of the general formula I (R1, R2 = alkyl, R1 and R2, taken together, may form a C4-6-ring structure with sulfur; R = H, alkyl; R3 = H, alkyl, alkoxyl, nitro; n = 1-6; and Y- = alkylsulfonate, arylsulfonate, bisalkylsulfonylimide or

trisalkylsulfonylmethide). Chemical amplified resist compns. comprising the inventive photoacid generators have improved resolution, thermal stability, storage stability and minimized line edge roughness.

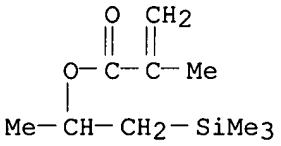
IC ICM G03C001-76
NCL 430270100; 430311000
CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 38
ST photoacid generator chem amplified resist compn ArF KrF photolithog
IT Photolithography
Photoresists
(photoacid generators for chemical amplified resist compns. and patterning process)
IT 3338-16-7
RL: TEM (Technical or engineered material use); USES (Uses)
(basic compound; photoacid generators for chemical amplified resist compns. and patterning process)
IT 308141-03-9 359635-45-3 433951-29-2 795312-01-5
RL: TEM (Technical or engineered material use); USES (Uses)
(dissoln. inhibitor; photoacid generators for chemical amplified resist compns. and patterning process)
IT 795311-77-2P 795311-79-4P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(photoacid generator; photoacid generators for chemical amplified resist compns. and patterning process)
IT 795311-80-7P 795311-82-9P 795311-83-0P 795311-85-2P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(photoacid generator; photoacid generators for chemical amplified resist compns. and patterning process)
IT 39153-56-5 144317-44-2 197447-16-8 266308-64-9 301664-71-1
RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generator; photoacid generators for chemical amplified resist compns. and patterning process)
IT 67-68-5, Dimethyl sulfoxide, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(photoacid generator; preparation of photoacid generators for chemical amplified resist compns.)
IT 828-51-3
RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generators for chemical amplified resist compns. and patterning process)
IT 155040-27-0 158593-28-3 177034-75-2 200808-68-0 301153-46-8
326925-68-2 330596-02-6 336620-26-9 485819-00-9 485819-02-1
490040-72-7 595558-21-7 601520-54-1 601520-57-4 **601520-61-0**
601520-62-1 601520-65-4 **635715-39-8** 795311-87-4
795311-88-5 795311-89-6 795311-90-9 795311-92-1 795311-93-2
795311-95-4 795311-97-6 795311-98-7 **795311-99-8**
RL: TEM (Technical or engineered material use); USES (Uses)
(**photoresist** resin; photoacid generators for chemical amplified **resist** compns. and patterning process)
IT 93-04-9, 2-Methoxynaphthalene 109-65-9, n-Butyl bromide 135-19-3, 2-Naphthol, reactions 1600-44-8, Tetramethylene sulfoxide 10484-56-7 29420-49-3, Potassium perfluorobutanesulfonate
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of photoacid generators for chemical amplified resist compns.)
IT **601520-61-0 635715-39-8 795311-99-8**
RL: TEM (Technical or engineered material use); USES (Uses)

(**photoresist** resin; photoacid generators for chemical amplified **resist** compns. and patterning process)

RN 601520-61-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methyl-2-(trimethylsilyl)ethyl ester, polymer with ethenylheptamethylcyclotetrasiloxane and 2,5-furandione (9CI) (CA INDEX NAME)

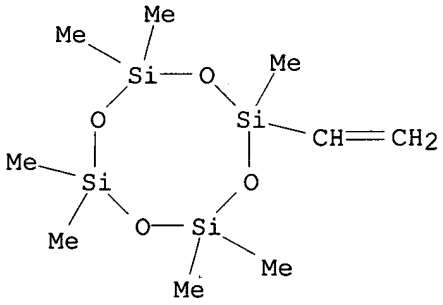
CM 1

CRN 409320-43-0
CMF C10 H20 O2 Si



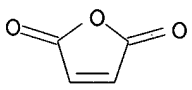
CM 2

CRN 3763-39-1
CMF C9 H24 O4 Si4



CM 3

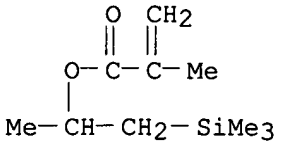
CRN 108-31-6
CMF C4 H2 O3



RN 635715-39-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(2,4,4,6,6,8,8-heptamethylcyclotetrasiloxan-2-yl)propyl ester, polymer with 2,5-furandione and 1-methyl-2-(trimethylsilyl)ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

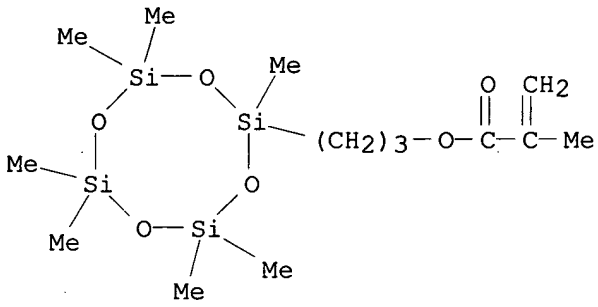
CM 1

CRN 409320-43-0
CMF C10 H20 O2 Si



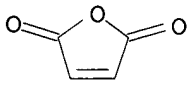
CM 2

CRN 110867-24-8
CMF C14 H32 O6 Si4



CM 3

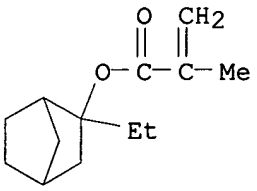
CRN 108-31-6
CMF C4 H2 O3



RN 795311-99-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-ethylbicyclo[2.2.1]hept-2-yl ester, polymer with ethenylheptamethylcyclotetrasiloxane and 2,5-furandione (9CI) (CA INDEX NAME)

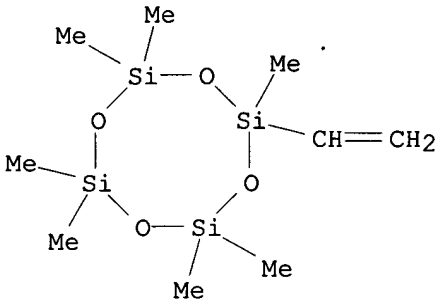
CM 1

CRN 330595-98-7
CMF C13 H20 O2



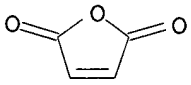
CM 2

CRN 3763-39-1
CMF C9 H24 O4 Si4



CM 3

CRN 108-31-6
CMF C4 H2 O3

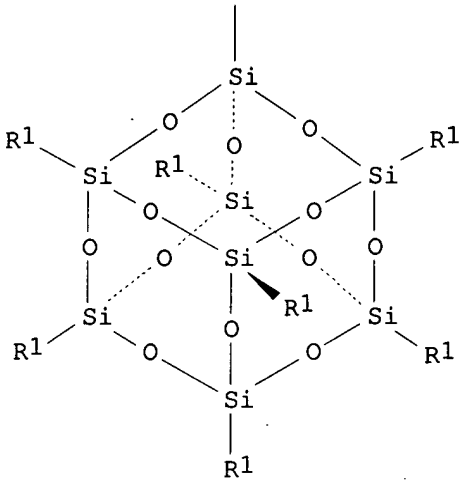


L97 ANSWER 5 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:779219 HCAPLUS
DN 141:285810
TI Positive-working resist composition containing acrylic resin with polyhedral oligomeric silsesquioxane group
IN Adegawa, Yutaka
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 55 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2004264479	A2	20040924	JP 2003-53704	20030228
PRAI JP 2003-53704		20030228		

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

GI



I

AB The composition contains (A) an acrylic resin decomposable by acid for increasing solubility to alkaline developer and comprising (a1) a repeating unit bearing I [R1 = (un)substituted, (branched) or (cyclic) alkyl] and (a2) (meth)acrylic acid ester repeating unit containing >0 mol% of acrylic acid ester unit, and (B) a compound generating an acid by actinic ray irradiation The composition, sensitive to far UV, shows high resolution, mask linearity, and less scum generation.

IC ICM G03F007-039
ICS C08F022-00; C08F222-00; C08F230-08; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 38

ST polyhedral oligomeric silsesquioxane acrylic copolymer; pos resist acrylic acid ester copolymer

IT Polysiloxanes, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(KP 341, surfactant; pos.-working resist composition containing acrylic resin with polyhedral oligomeric silsesquioxane group)

IT Surfactants
(pos.-working resist composition containing acrylic resin with polyhedral oligomeric silsesquioxane group)

IT Semiconductor device fabrication
(pos.-working resist composition containing acrylic resin with polyhedral oligomeric silsesquioxane group for manufacture of semiconductor device)

IT Resists
(pos.-working; pos.-working resist composition containing acrylic resin with polyhedral oligomeric silsesquioxane group)

IT 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate 197447-16-8, Triphenylsulfonium 2,4,6-triisopropylphenylsulfonate 241806-75-7

258341-99-0
RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generator; pos.-working resist composition containing acrylic resin
with polyhedral oligomeric silsesquioxane group)

IT **760971-53-7P 760971-55-9P 760971-56-0P**
760971-59-3P **760971-62-8P 760971-65-1P**
760971-67-3P 760971-70-8P 760971-73-1P
760971-77-5P 760971-79-7P 760971-81-1P
760971-83-3P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos.-working **resist** composition containing acrylic resin with polyhedral oligomeric silsesquioxane group)

IT 716-79-0, 2-Phenylbenzimidazole 3001-72-7, 1,5-Diazabicyclo[4.3.0]-5-nonene 6674-22-2, 1,8-Diazabicyclo[5.4.0]-7-undecene
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(pos.-working resist composition containing acrylic resin with polyhedral oligomeric silsesquioxane group)

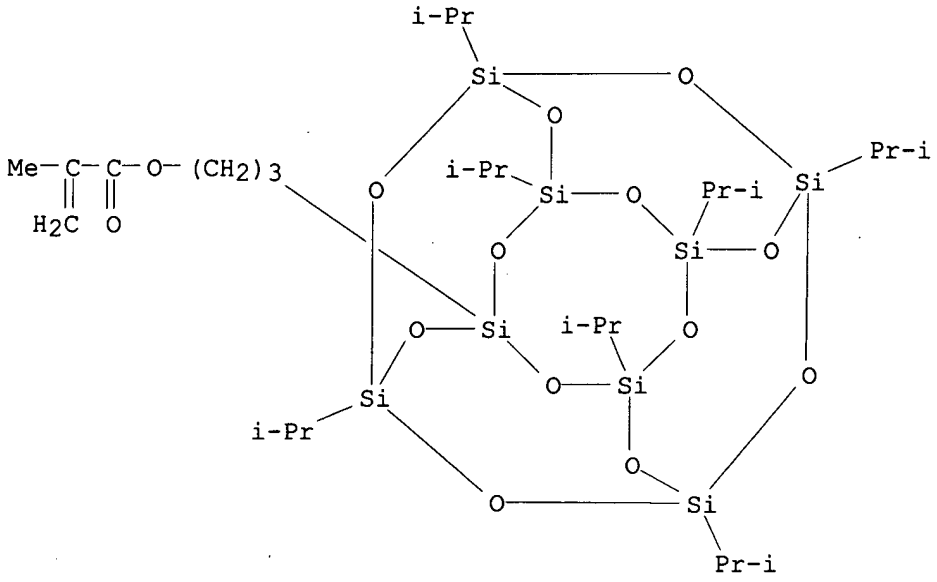
IT 137462-24-9, Megafac F 176 216679-67-3, Megafac R08
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(surfactant; pos.-working resist composition containing acrylic resin with polyhedral oligomeric silsesquioxane group)

IT **760971-53-7P 760971-55-9P 760971-56-0P**
760971-62-8P 760971-65-1P 760971-67-3P
760971-70-8P 760971-73-1P 760971-77-5P
760971-79-7P 760971-81-1P 760971-83-3P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos.-working **resist** composition containing acrylic resin with polyhedral oligomeric silsesquioxane group)

RN 760971-53-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-[heptakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl]propyl ester, polymer with 1,1-dimethylethyl 2-propenoate (9CI) (CA INDEX NAME)

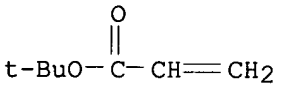
CM 1

CRN 760970-22-7
CMF C28 H60 O14 Si8



CM 2

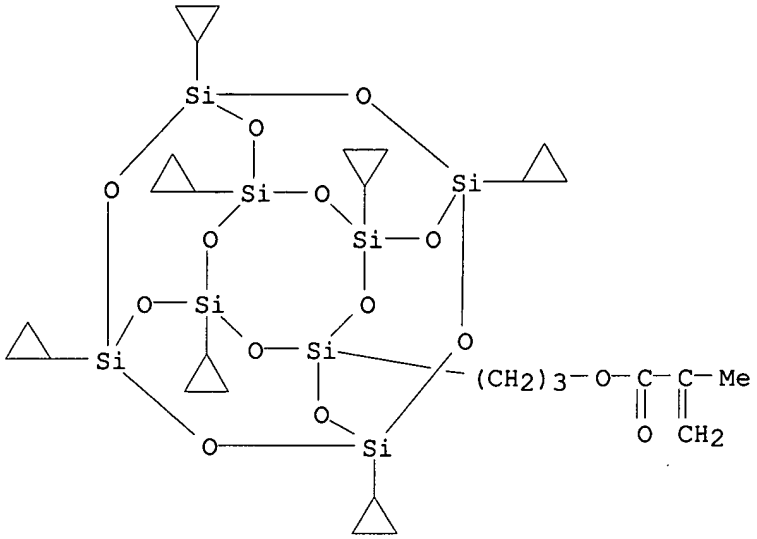
CRN 1663-39-4
CMF C7 H12 O2



RN 760971-55-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-[heptacyclopropylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl]propyl ester, polymer with 1,1-dimethylethyl 2-propenoate (9CI) (CA INDEX NAME)

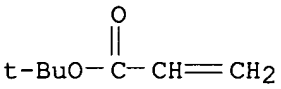
CM 1

CRN 760970-24-9
CMF C28 H46 O14 Si8



CM 2

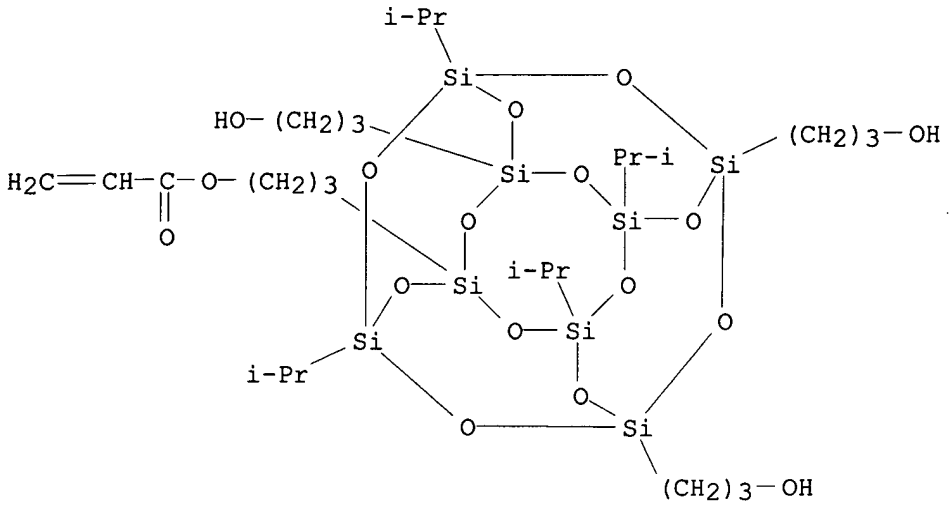
CRN 1663-39-4
CMF C7 H12 O2



RN 760971-56-0 HCAPLUS
CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 3-[3,7,9-tris(2-hydroxy-1-methylethyl)-5,11,13,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxan-1-yl]propyl 2-propenoate and 3-[3,7,9-tris(3-hydroxypropyl)-5,11,13,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxan-1-yl]propyl 2-propenoate (9CI) (CA INDEX NAME)

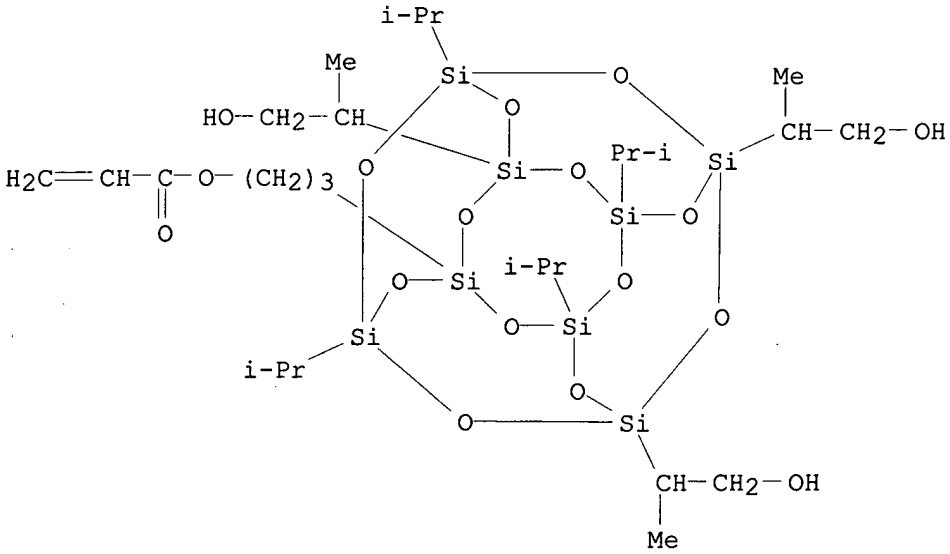
CM 1

CRN 760970-27-2
CMF C27 H58 O17 Si8



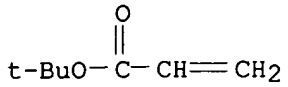
CM 2

CRN 760970-26-1
CMF C27 H58 O17 Si8



CM 3

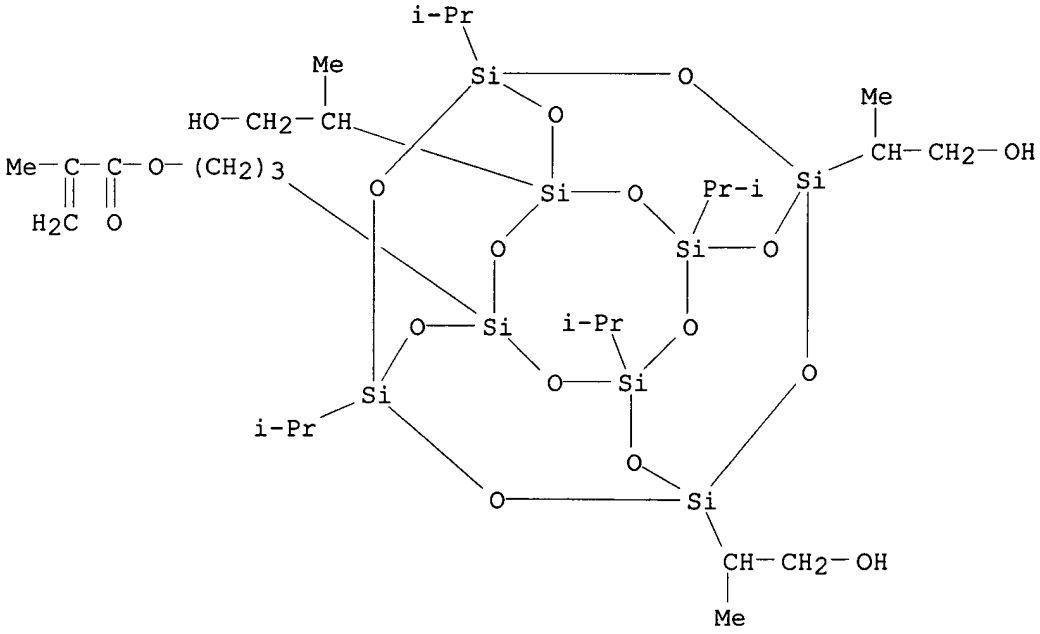
CRN 1663-39-4
CMF C7 H12 O2



RN 760971-62-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-[3,7,9-tris(2-hydroxy-1-methylethyl)-5,11,13,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxan-1-yl]propyl ester, polymer with 1,1-dimethylethyl 2-propenoate (9CI) (CA INDEX NAME)

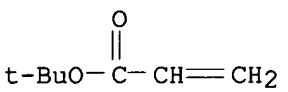
CM 1

CRN 760971-61-7
CMF C28 H60 O17 Si8



CM 2

CRN 1663-39-4
CMF C7 H12 O2

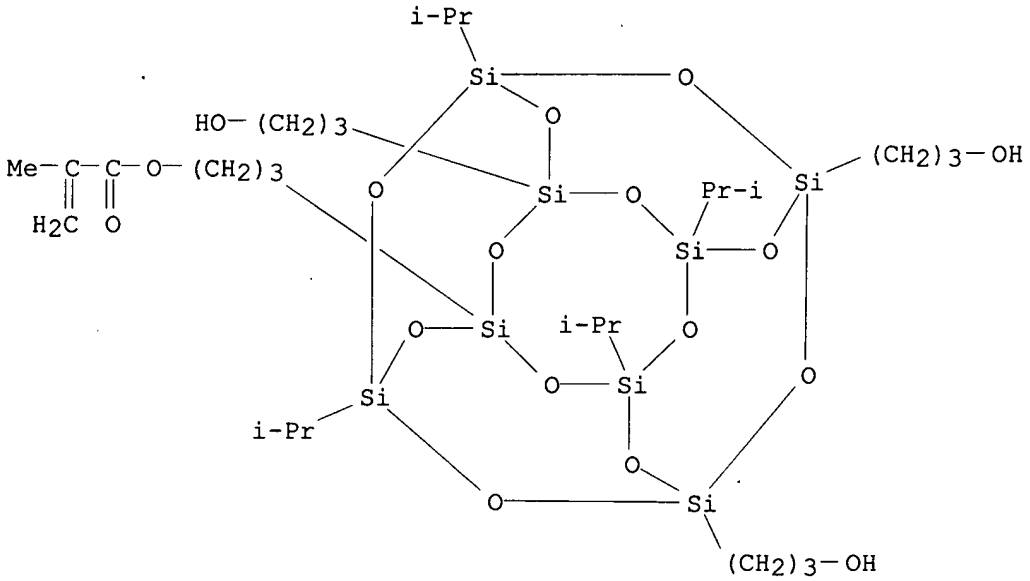


RN 760971-65-1 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-[3,7,9-tris(3-hydroxypropyl)-5,11,13,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxan-1-yl]propyl ester, polymer with 1,1-dimethylethyl 2-propenoate (9CI) (CA

INDEX NAME)

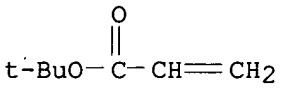
CM 1

CRN 760971-64-0
CMF C28 H60 O17 Si8



CM 2

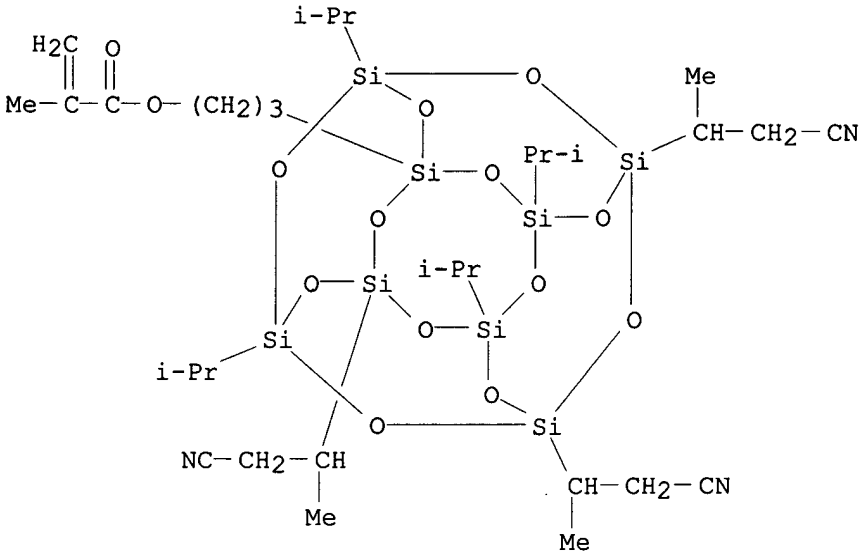
CRN 1663-39-4
CMF C7 H12 O2



RN 760971-67-3 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-[3,7,9-tris(2-cyano-1-methylethyl)-5,11,13,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxan-1-yl]propyl ester, polymer with 1,1-dimethylethyl 2-propenoate (9CI) (CA INDEX NAME)

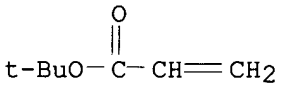
CM 1

CRN 760970-44-3
CMF C31 H57 N3 O14 Si8



CM 2

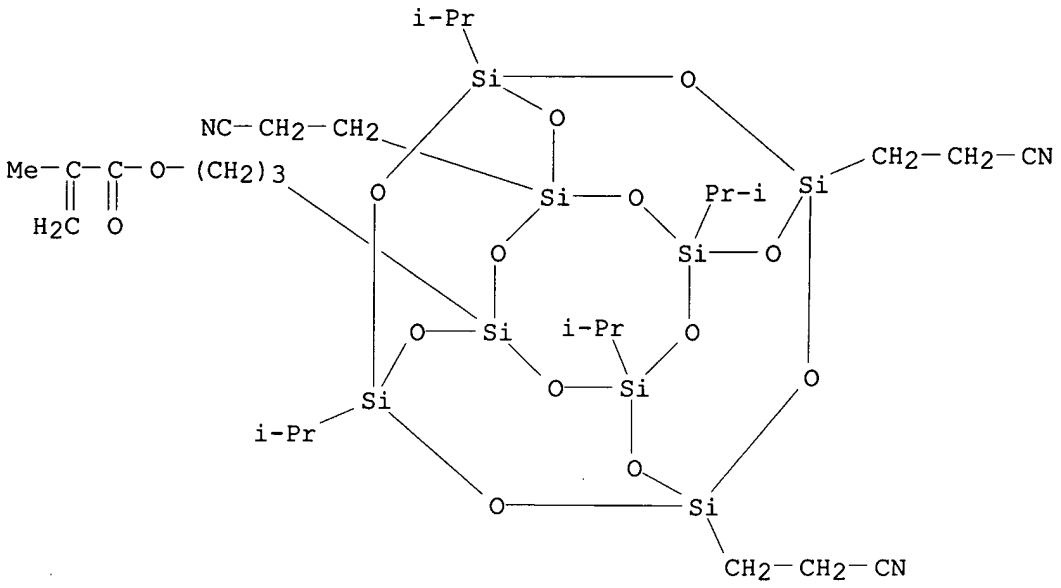
CRN 1663-39-4
CMF C7 H12 O2



RN 760971-70-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-[3,7,9-tris(2-cyanoethyl)-5,11,13,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxan-1-yl]propyl ester, polymer with 1,1-dimethylethyl 2-propenoate (9CI) (CA INDEX NAME)

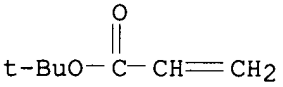
CM 1

CRN 760970-32-9
CMF C28 H51 N3 O14 Si8



CM 2

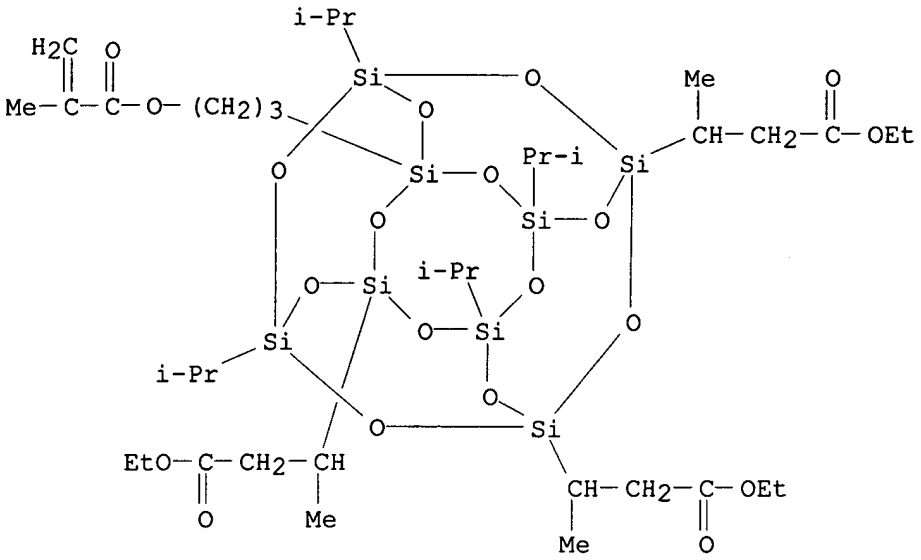
CRN 1663-39-4
CMF C7 H12 O2



RN 760971-73-1 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-[3,7,9-tris(3-ethoxy-1-methyl-3-oxopropyl)-5,11,13,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxan-1-yl]propyl ester, polymer with 1,1-dimethylethyl 2-propenoate (9CI) (CA INDEX NAME)

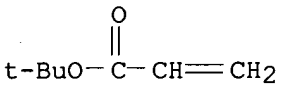
CM 1

CRN 760970-34-1
CMF C37 H72 O20 Si8



CM 2

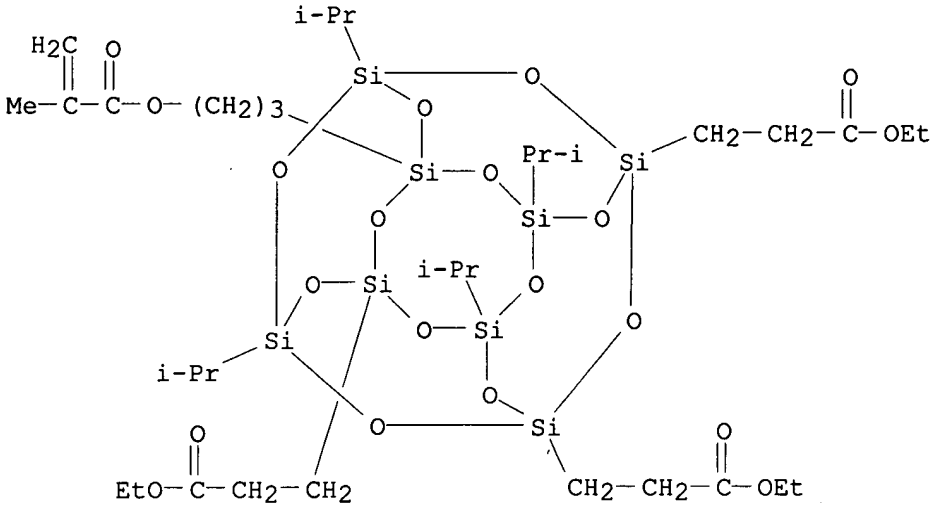
CRN 1663-39-4
CMF C7 H12 O2



RN 760971-77-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-[3,7,9-tris(3-ethoxy-3-oxopropyl)-5,11,13,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxan-1-yl]propyl ester, polymer with 1,1-dimethylethyl 2-propenoate (9CI) (CA INDEX NAME)

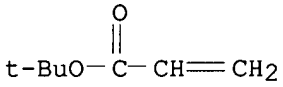
CM 1

CRN 760970-36-3
CMF C34 H66 O20 Si8



CM 2

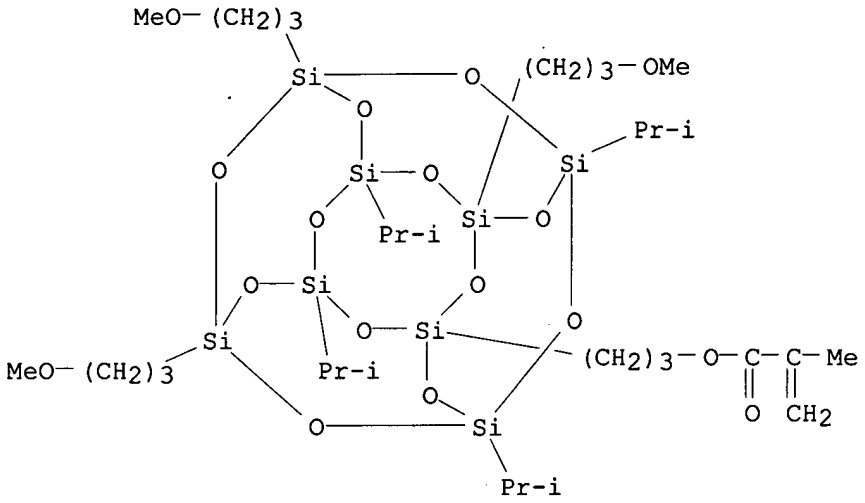
CRN 1663-39-4
CMF C7 H12 O2



RN 760971-79-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-[3,7,9-tris(3-methoxypropyl)-5,11,13,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxan-1-yl]propyl ester, polymer with 1,1-dimethylethyl 2-propenoate (9CI) (CA INDEX NAME)

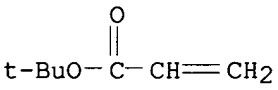
CM 1

CRN 760970-38-5
CMF C31 H66 O17 Si8



CM 2

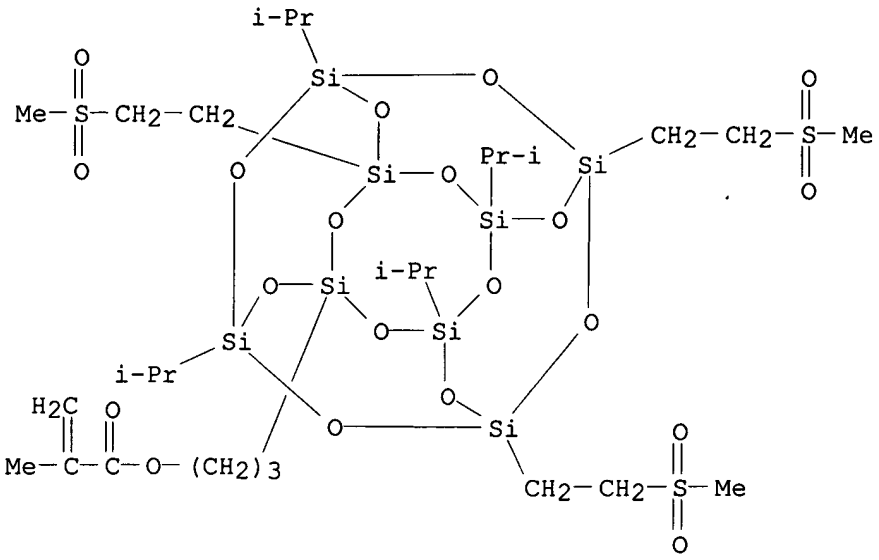
CRN 1663-39-4
CMF C7 H12 O2



RN 760971-81-1 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-[3,5,11,13-tetrakis(1-methylethyl)-7,9,15-tris[2-(3-methylsulfonyl)ethyl]pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxan-1-yl]propyl ester, polymer with 1,1-dimethylethyl 2-propenoate (9CI) (CA INDEX NAME)

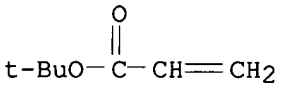
CM 1

CRN 760970-40-9
CMF C28 H60 O20 S3 Si8



CM 2

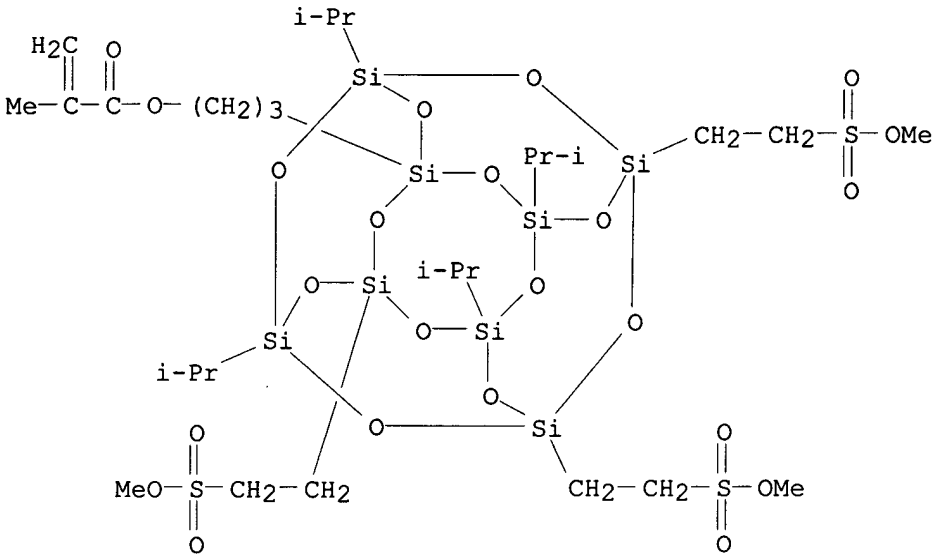
CRN 1663-39-4
CMF C7 H12 O2



RN 760971-83-3 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-[3,7,13-tris[2-(methoxysulfonyl)ethyl]-5,9,11,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxan-1-yl]propyl ester, polymer with 1,1-dimethylethyl 2-propenoate (9CI) (CA INDEX NAME)

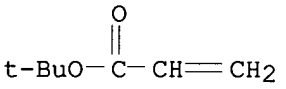
CM 1

CRN 760970-42-1
CMF C28 H60 O23 S3 Si8



CM 2

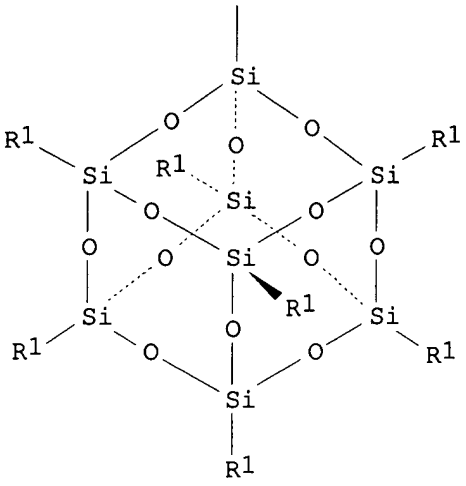
CRN 1663-39-4
CMF C7 H12 O2



L97 ANSWER 6 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:779218 HCAPLUS
DN 141:285809
TI Positive-working resist composition containing acrylic resin with lactone and polyhedral oligomeric silsesquioxane groups
IN Adegawa, Yutaka
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 62 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2004264478	A2	20040924	JP 2003-53703	20030228
PRAI JP 2003-53703		20030228		

GI



I

AB The composition contains (A) a resin decomposable by acid for increasing solubility to alkaline developer and comprising a repeating unit bearing I [R1 = (un)substituted, (branched) or (cyclic) alkyl] and another unit bearing lactone structure, and (B) a compound generating an acid by actinic ray irradiation The composition, sensitive to far UV, shows high resolution, mask linearity, and less scum generation.

IC ICM G03F007-039
ICS C08F220-28; C08F230-08; G03F007-075; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 38

ST polyhedral oligomeric silsesquioxane acrylic copolymer; lactone group acrylic copolymer pos resist

IT Polysiloxanes, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(KP 341, surfactant; pos. resist composition containing alkali-soluble acrylic resin with lactone and POSS groups)

IT Surfactants
(pos. resist composition containing alkali-soluble acrylic resin with lactone and POSS groups)

IT Semiconductor device fabrication
(pos. resist composition containing alkali-soluble acrylic resin with lactone and POSS groups for semiconductor device fabrication)

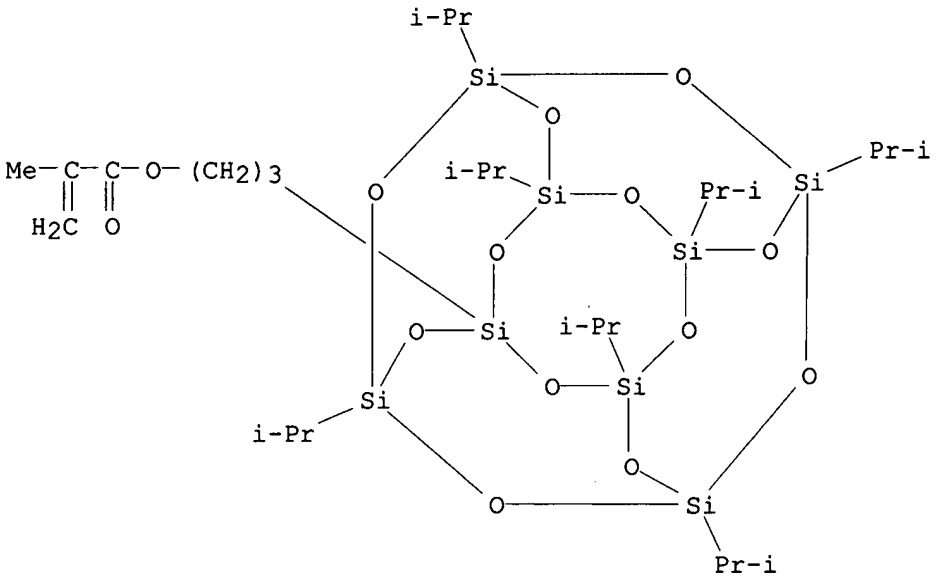
IT Resists
(pos.-working; pos. resist composition containing alkali-soluble acrylic resin with lactone and POSS groups)

IT 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate 197447-16-8, Triphenylsulfonium-2,4,6-triisopropylphenyl sulfonate 241806-75-7 258341-99-0
RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generator; pos. resist composition containing alkali-soluble acrylic

resin with lactone and POSS groups)
IT **760970-23-8P 760970-25-0P 760970-28-3P**
760970-31-8P 760970-33-0P 760970-35-2P
760970-37-4P 760970-39-6P 760970-41-0P
760970-43-2P 760970-46-5P 760970-47-6P
760970-48-7P 760970-49-8P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos. **resist** composition containing alkali-soluble acrylic resin with lactone and POSS groups)
IT 716-79-0, 2-Phenylbenzimidazole 3001-72-7, 1,5-Diazabicyclo[4.3.0]-5-nonene 6674-22-2, 1,8-Diazabicyclo[5.4.0]-7-undecene
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(pos. resist composition containing alkali-soluble acrylic resin with lactone and
POSS groups)
IT 195000-66-9P 213616-83-2P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(preparation and polymerization of)
IT 79-41-4, Methacrylic acid, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with lactone compound)
IT 19444-84-9 20882-04-6, Lightester HOMS
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with methacrylic acid)
IT 137462-24-9, Megafac F 176 216679-67-3, Megafac R 08
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(surfactant; pos. resist composition containing alkali-soluble acrylic resin with
lactone and POSS groups)
IT **760970-23-8P 760970-25-0P 760970-28-3P**
760970-31-8P 760970-33-0P 760970-35-2P
760970-37-4P 760970-39-6P 760970-41-0P
760970-43-2P 760970-46-5P 760970-47-6P
760970-48-7P 760970-49-8P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos. **resist** composition containing alkali-soluble acrylic resin with lactone and POSS groups)
RN 760970-23-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with 3-[heptakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl] propyl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

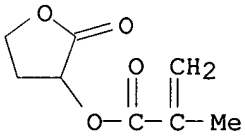
CM 1

CRN 760970-22-7
CMF C28 H60 O14 Si8



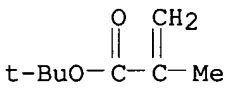
CM 2

CRN 195000-66-9
CMF C8 H10 O4



CM 3

CRN 585-07-9
CMF C8 H14 O2

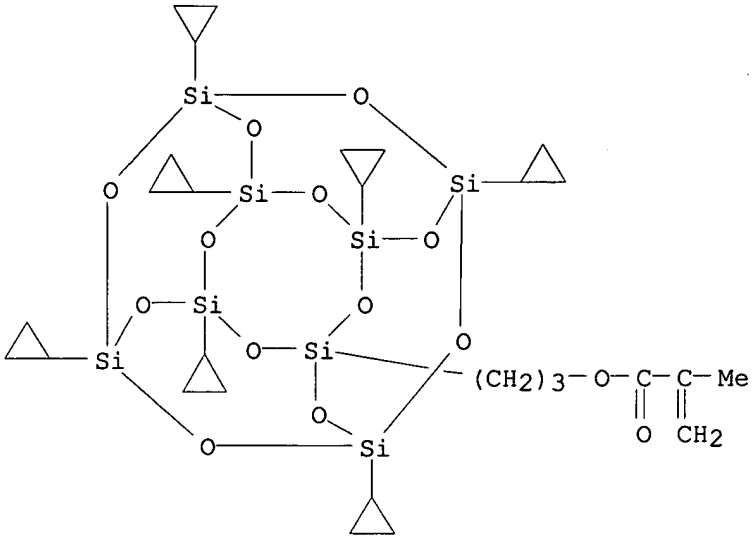


RN 760970-25-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with 3-(heptacyclopropylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl]propyl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

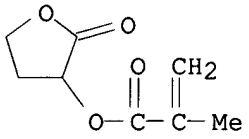
CRN 760970-24-9

CMF C28 H46 O14 Si8



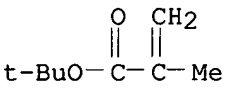
CM 2

CRN 195000-66-9
CMF C8 H10 O4



CM 3

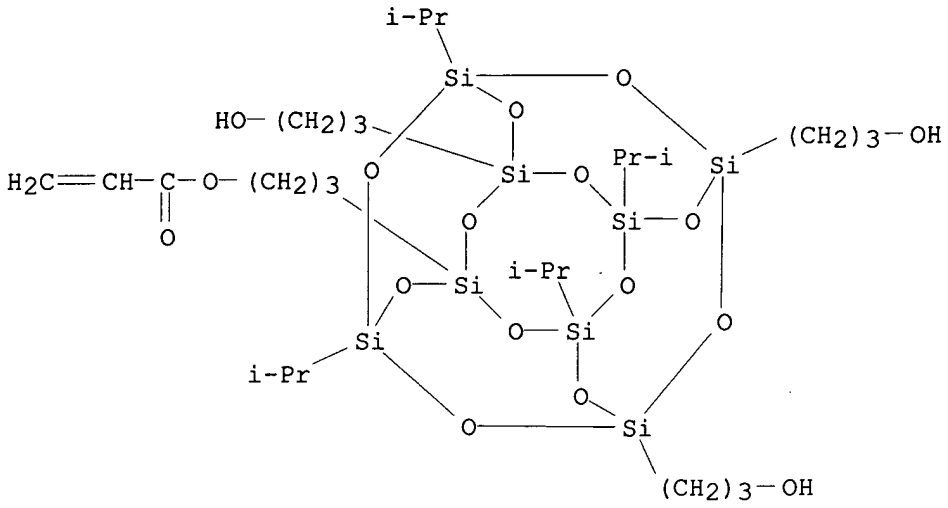
CRN 585-07-9
CMF C8 H14 O2



RN 760970-28-3 HCAPLUS
CN Butanedioic acid, 2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl tetrahydro-2-oxo-3-furanyl ester, polymer with 1,1-dimethylethyl 2-propenoate, 3-[3,7,13-tris(2-hydroxy-1-methylethyl)-5,9,11,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl]propyl 2-propenoate and 3-[3,7,13-tris(3-hydroxypropyl)-5,9,11,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl]propyl 2-propenoate (9CI) (CA INDEX NAME)

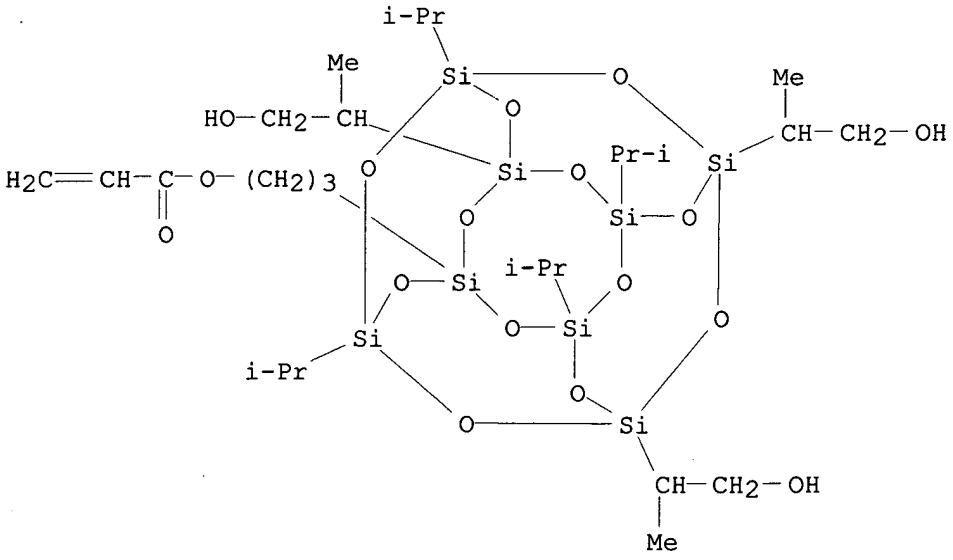
CM 1

CRN 760970-27-2
CMF C27 H58 O17 Si8



CM 2

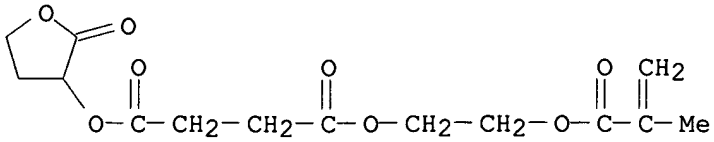
CRN 760970-26-1
CMF C27 H58 O17 Si8



CM 3

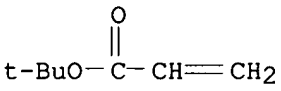
CRN 213616-83-2

CMF C14 H18 O8



CM 4

CRN 1663-39-4
CMF C7 H12 O2

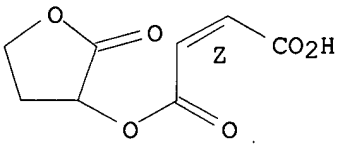


RN 760970-31-8 HCAPLUS
CN 2-Butenedioic acid (2Z)-, mono(tetrahydro-2-oxo-3-furanyl) ester, polymer with 1,1-dimethylethyl 2-propenoate and 3-[3,7,13-tris(2-cyano-1-methylethyl)-5,9,11,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl]propyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

CM 1

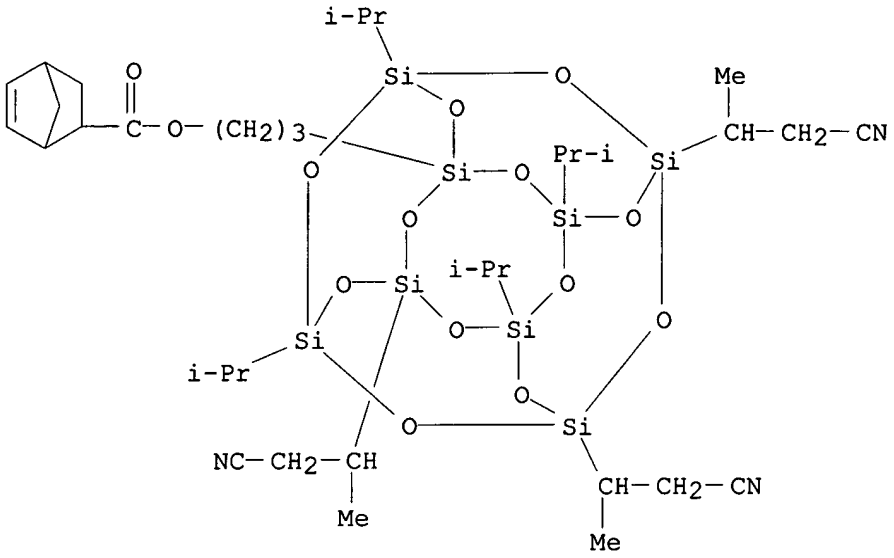
CRN 760970-30-7
CMF C8 H8 O6

Double bond geometry as shown.



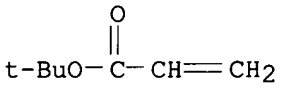
CM 2

CRN 760970-29-4
CMF C35 H61 N3 O14 Si8



CM 3

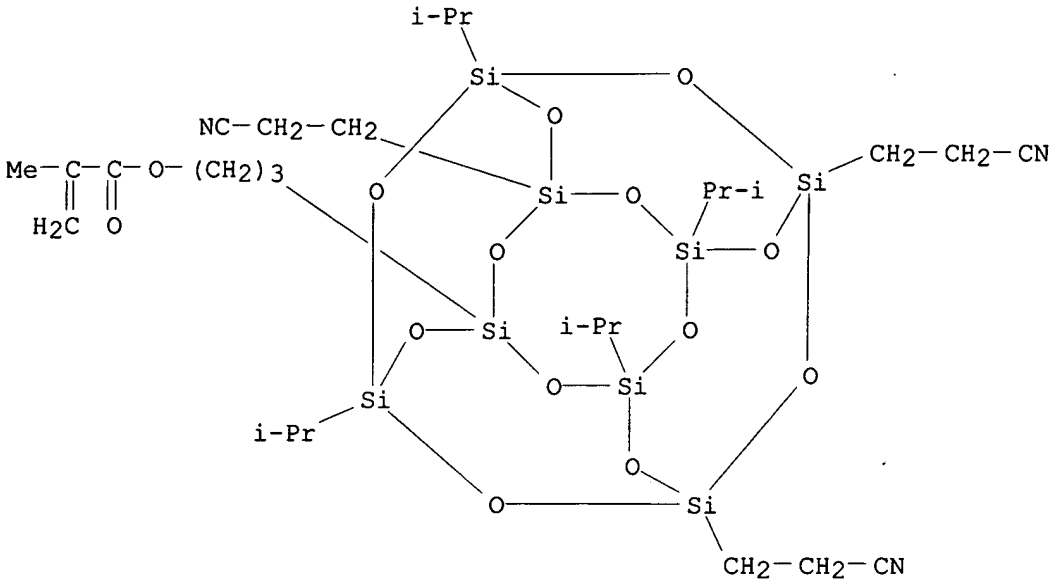
CRN 1663-39-4
CMF C7 H12 O2



RN 760970-33-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with 3-[heptakis(2-cyanoethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl]propyl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

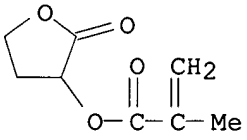
CM 1

CRN 760970-32-9
CMF C28 H51 N3 O14 Si8



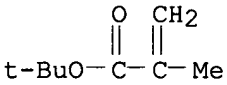
CM 2

CRN 195000-66-9
CMF C8 H10 O4



CM 3

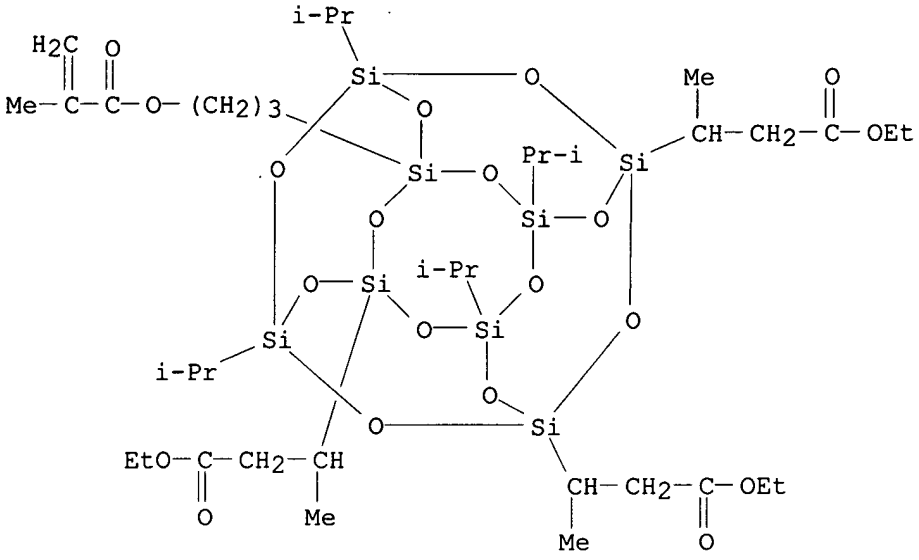
CRN 585-07-9
CMF C8 H14 O2



RN 760970-35-2 HCAPLUS
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,7-tripropanoic acid, β,β',β''-trimethyl-5,9,11,15-tetrakis(1-methylethyl)-13-[3-[(2-methyl-1-oxo-2-propenyl)oxy]propyl]-, triethyl ester, polymer with 1,1-dimethylethyl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

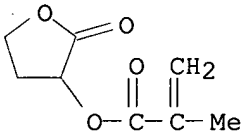
CM 1

CRN 760970-34-1
CMF C37 H72 O20 Si8



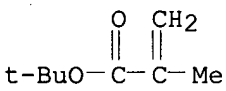
CM 2

CRN 195000-66-9
CMF C8 H10 O4



CM 3

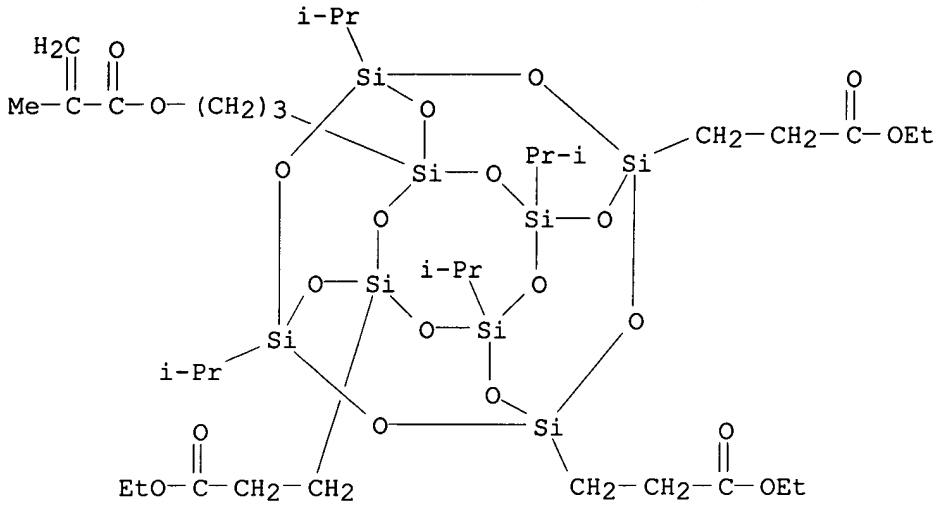
CRN 585-07-9
CMF C8 H14 O2



RN 760970-37-4 HCAPLUS
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,7-tripropanoic acid, 5,9,11,15-tetrakis(1-methylethyl)-13-[3-[(2-methyl-1-oxo-2-propenyl)oxy]propyl]-, triethyl ester, polymer with 1,1-dimethylethyl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

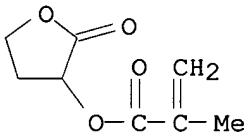
CM 1

CRN 760970-36-3
CMF C34 H66 O20 Si8



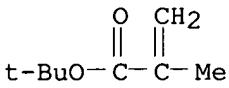
CM 2

CRN 195000-66-9
CMF C8 H10 O4



CM 3

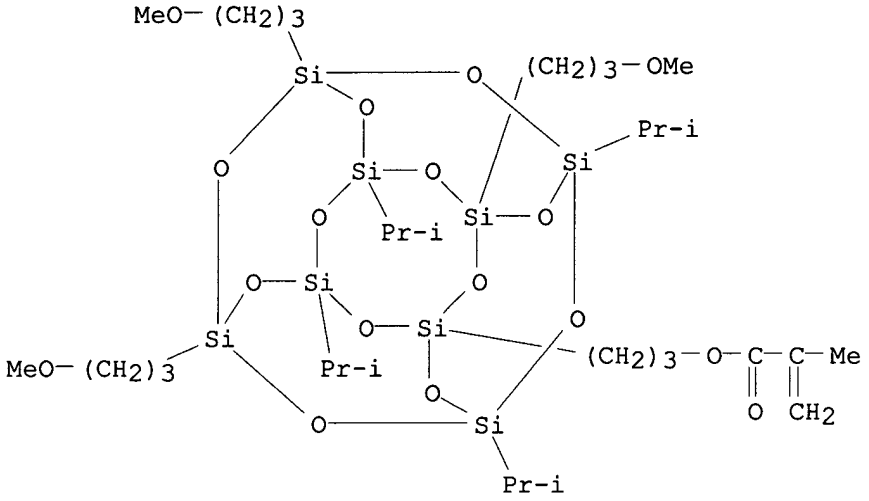
CRN 585-07-9
CMF C8 H14 O2



RN 760970-39-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate and 3-[3,7,13-tris(3-methoxypropyl)-5,9,11,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl]propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

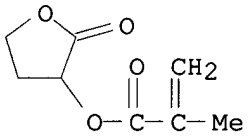
CM 1

CRN 760970-38-5
CMF C31 H66 O17 Si8



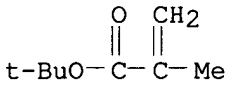
CM 2

CRN 195000-66-9
CMF C8 H10 O4



CM 3

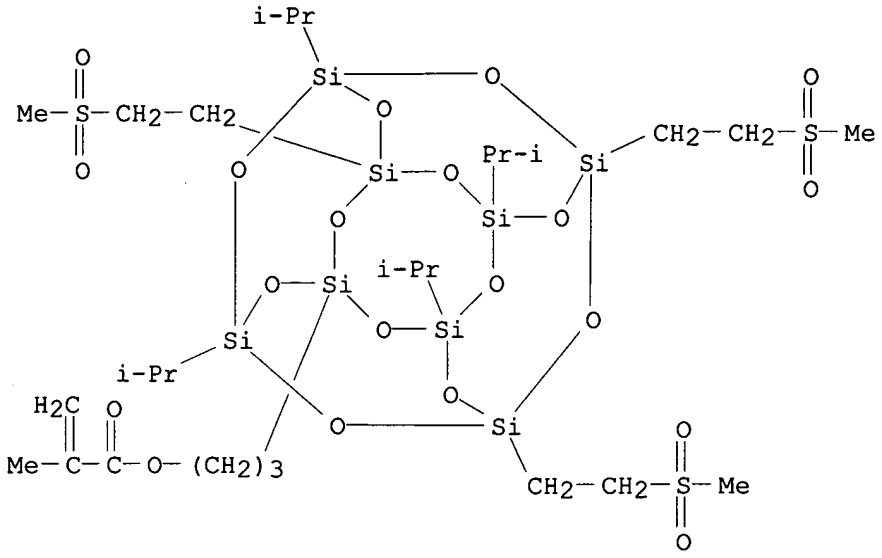
CRN 585-07-9
CMF C8 H14 O2



RN 760970-41-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate and 3-[3,5,11,13-tetrakis(1-methylethyl)-7,9,15-tris[2-(methylsulfonyl)ethyl]pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl]propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

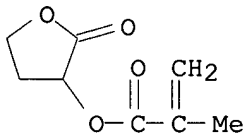
CM 1

CRN 760970-40-9
CMF C28 H60 O20 S3 Si8



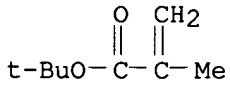
CM 2

CRN 195000-66-9
CMF C8 H10 O4



CM 3

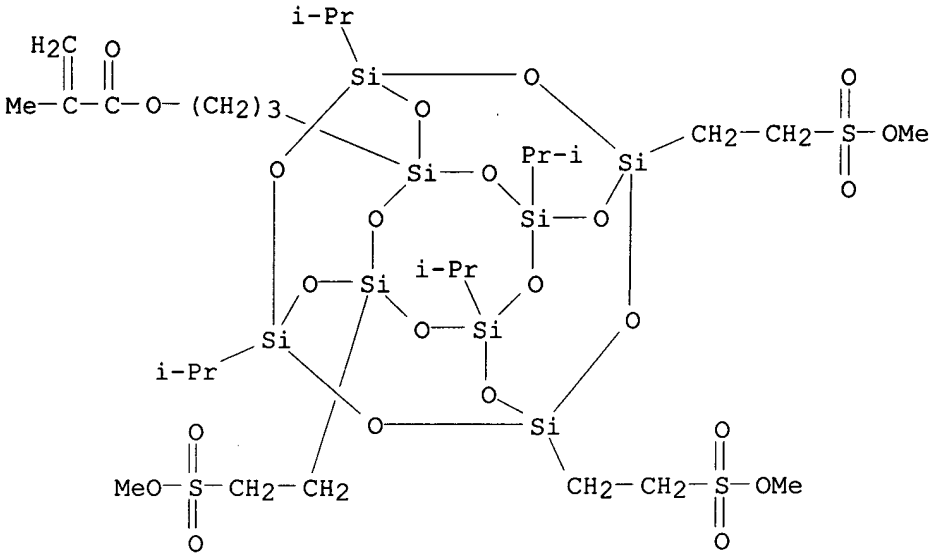
CRN 585-07-9
CMF C8 H14 O2



RN 760970-43-2 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate and 3-[3,7,13-tris[2-(methoxysulfonyl)ethyl]-5,9,11,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl]propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

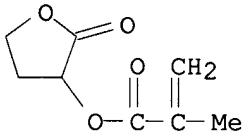
CM 1

CRN 760970-42-1
CMF C28 H60 O23 S3 Si8



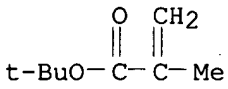
CM 2

CRN 195000-66-9
CMF C8 H10 O4



CM 3

CRN 585-07-9
CMF C8 H14 O2

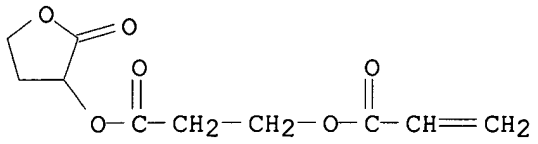


RN 760970-46-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-[3,7,13-tris(2-cyanoethyl)-5,9,11,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl]propyl ester, polymer with 1,1-dimethylethyl 2-propenoate,

3-oxo-3-[(tetrahydro-2-oxo-3-furanyl)oxy]propyl 2-propenoate and 3-[3,7,13-tris(2-cyano-1-methylethyl)-5,9,11,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl]propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

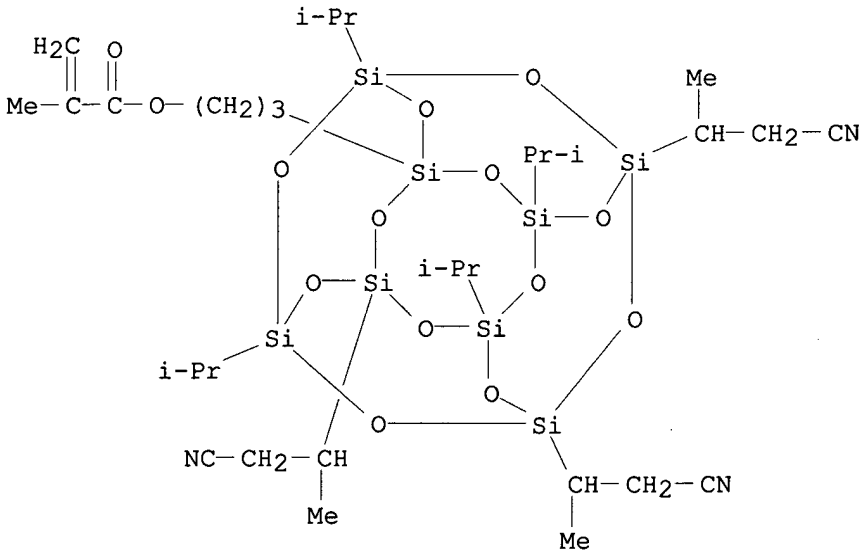
CM 1

CRN 760970-45-4
CMF C10 H12 O6



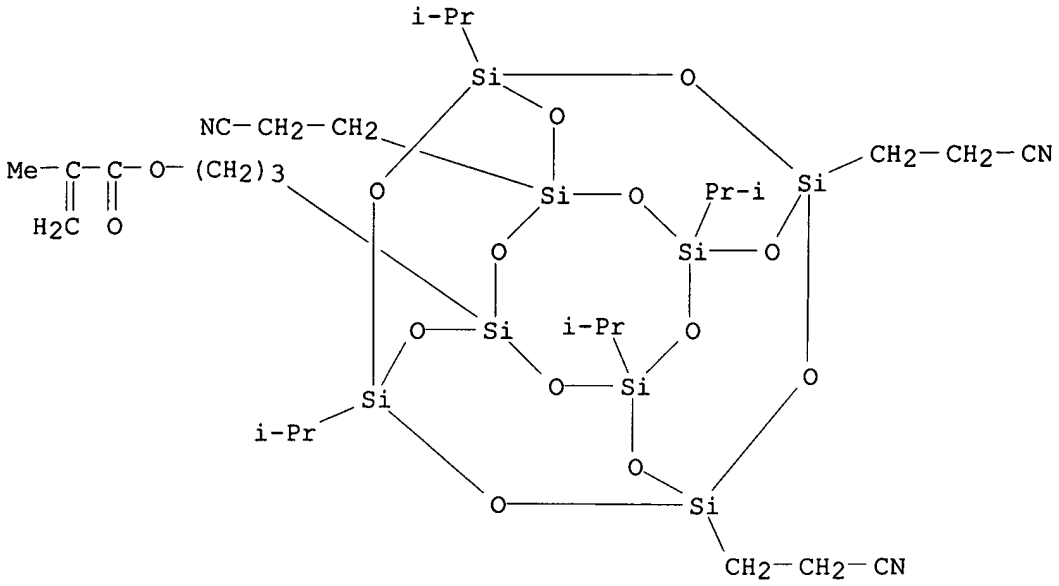
CM 2

CRN 760970-44-3
CMF C31 H57 N3 O14 Si8



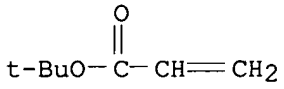
CM 3

CRN 760970-32-9
CMF C28 H51 N3 O14 Si8



CM 4

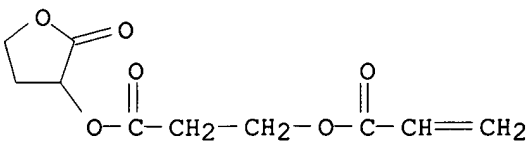
CRN 1663-39-4
CMF C7 H12 O2



RN 760970-47-6 HCAPLUS
CN Pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,7-tripropanoic acid, β,β',β''-trimethyl-5,9,11,15-tetrakis(1-methylethyl)-13-[3-[(2-methyl-1-oxo-2-propenyl)oxy]propyl]-, triethyl ester, polymer with 1,1-dimethylethyl 2-propenoate, 3-oxo-3-[(tetrahydro-2-oxo-3-furanyl)oxy]propyl 2-propenoate and triethyl 5,9,11,15-tetrakis(1-methylethyl)-13-[3-[(2-methyl-1-oxo-2-propenyl)oxy]propyl]pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane-1,3,7-tripropanoate (9CI) (CA INDEX NAME)

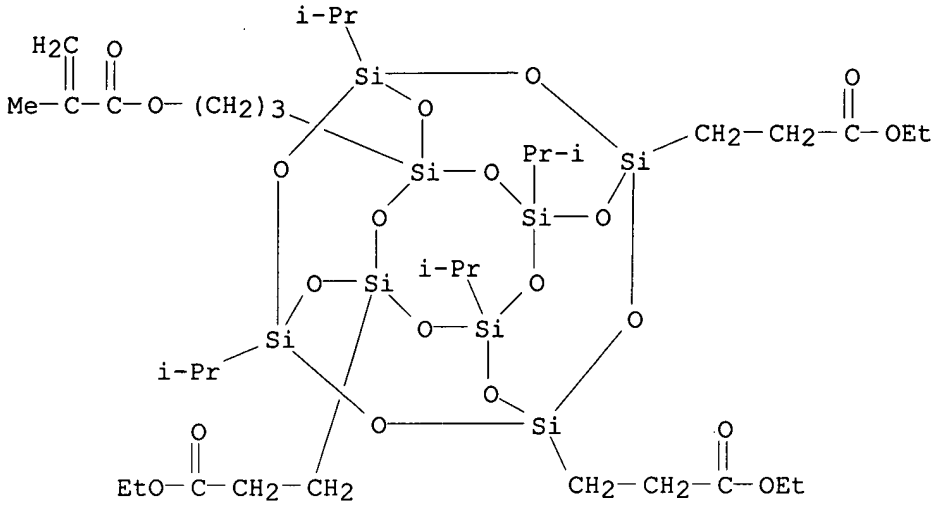
CM 1

CRN 760970-45-4
CMF C10 H12 O6



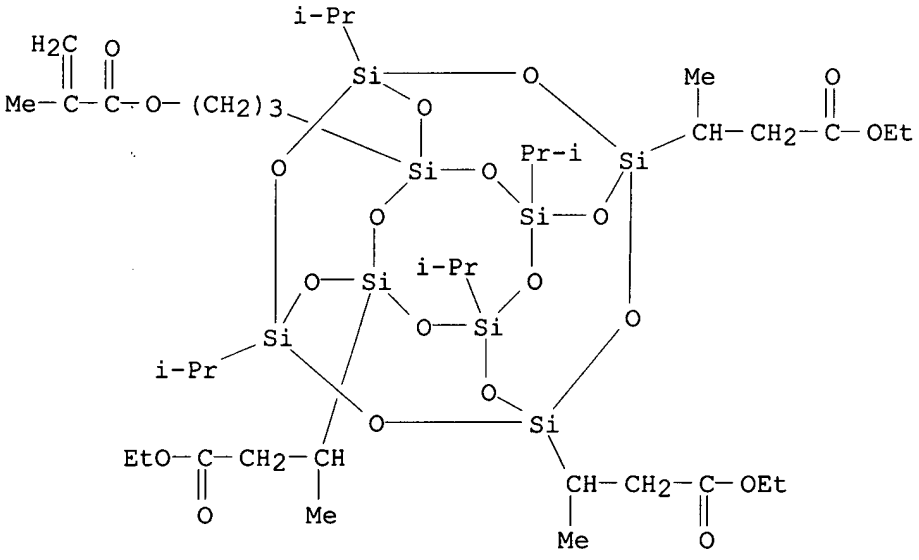
CM 2

CRN 760970-36-3
CMF C34 H66 O20 Si8



CM 3

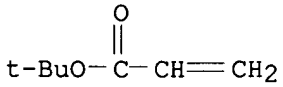
CRN 760970-34-1
CMF C37 H72 O20 Si8



CM 4

CRN 1663-39-4

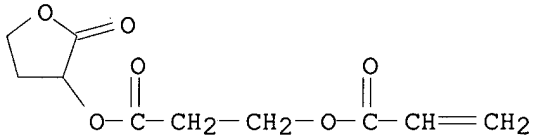
CMF C7 H12 O2



RN 760970-48-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-[3,5,11,13-tetrakis(1-methylethyl)-7,9,15-tris[2-(methylsulfonyl)ethyl]pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl]propyl ester, polymer with 1,1-dimethylethyl 2-propenoate, 3-oxo-3-[(tetrahydro-2-oxo-3-furanyl)oxy]propyl 2-propenoate and 3-[3,7,13-tris[3-(methoxysulfonyl)propyl]-5,9,11,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxan-1-yl]propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

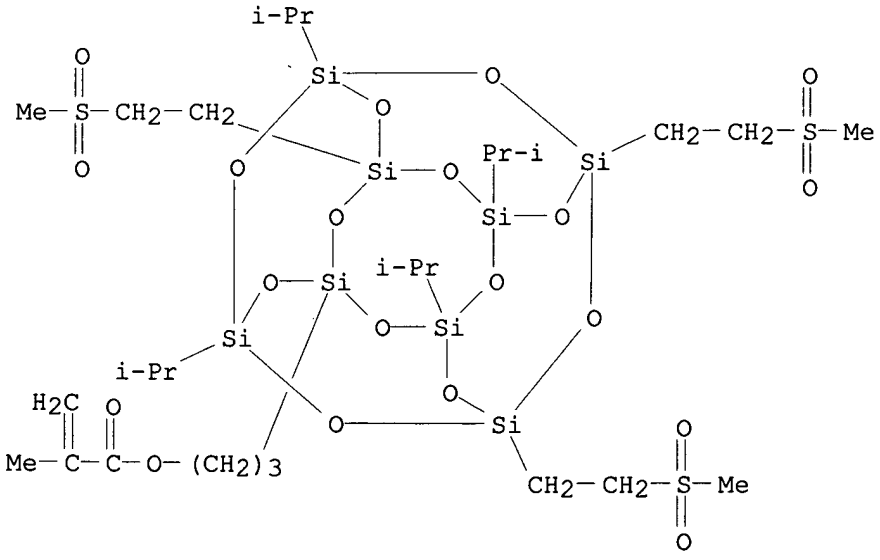
CM 1

CRN 760970-45-4
CMF C10 H12 O6



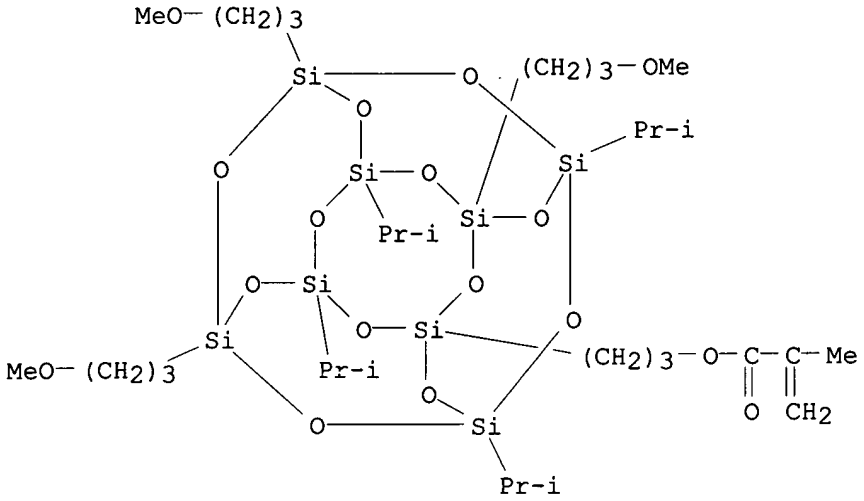
CM 2

CRN 760970-40-9
CMF C28 H60 O20 S3 Si8



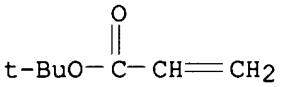
CM 3

CRN 760970-38-5
CMF C31 H66 O17 Si8



CM 4

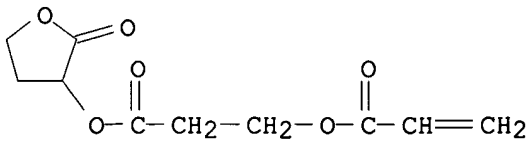
CRN 1663-39-4
CMF C7 H12 O2



RN 760970-49-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-[heptakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl]propyl ester, polymer with 1,1-dimethylethyl 2-propenoate, 3-oxo-3-[(tetrahydro-2-oxo-3-furanyl)oxy]propyl 2-propenoate and 3-[3,7,9-tris[2-(methoxysulfonyl)ethyl]-5,11,13,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxan-1-yl]propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

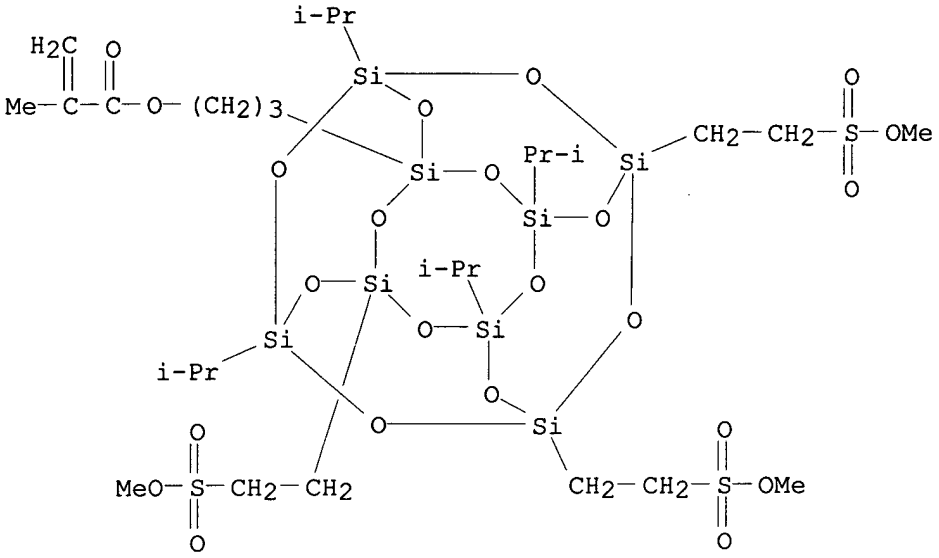
CM 1

CRN 760970-45-4
CMF C10 H12 O6



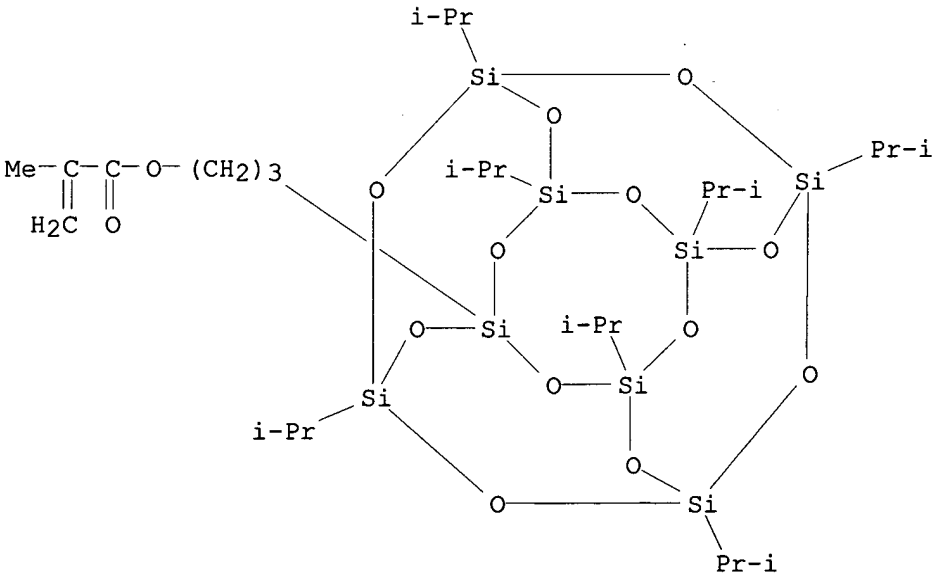
CM 2

CRN 760970-42-1
CMF C28 H60 O23 S3 Si8



CM 3

CRN 760970-22-7
CMF C28 H60 O14 Si8



CM 4

CRN 1663-39-4
CMF C7 H12 O2

L97 ANSWER 7 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:753226 HCAPLUS
DN 141:285793
TI Positive resist composition
IN Adegawa, Yutaka
PA Fuji Photo Film Co., Ltd., Japan
SO Eur. Pat. Appl., 63 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1457822	A2	20040915	EP 2004-4962	20040303
	EP 1457822	A3	20040922		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK				
	JP 2004264767	A2	20040924	JP 2003-57343	20030304
	US 2004180288	A1	20040916	US 2004-792306	20040304
PRAI	JP 2003-57343	A	20030304		

AB A pos. resist composition comprises (A) a resin having a specific structure as according to the claims and capable of decomposing under action of an acid to increase solubility in an alkali developer, and (B) a compound capable of generating an acid upon irradiation with an actinic ray or radiation. The object of the invention is to provide a pos. resist composition which is adaptable for exposure to far UV radiation using ArF and KrF as light sources in the process of manufacturing semiconductor devices and has various performance improvements, including heightened resolution, excellent mask linearity of CD, scum free, reduced thinning of resist film and reduced SEM shrink.

IC ICM G03F007-075
ICS C08G077-42; C08G077-442; C08L083-10
CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
ST pos resist photoresist ArF KrF compn photolithog
IT Polysiloxanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(KP-341; pos. resist composition)
IT Photolithography
(UV; pos. resist composition)
IT Positive photoresists
(pos. resist composition)
IT 757241-62-6P **757241-64-8P** 757241-76-2P 757241-82-0P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(pos. **resist** composition)

IT 757241-67-1 **757241-69-3** 757241-72-8 757241-74-0
757241-78-4 757241-80-8 757241-83-1 757241-86-4 757241-88-6
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(pos. **resist** composition)

IT 716-79-0, 2-Phenylbenzimidazole 3001-72-7, 1,5-Diazabicyclo[4.3.0]-5-nonene 6674-22-2, 1,8-Diazabicyclo[5.4.0]-7-undecene 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate 137462-24-9, Megafac F176 197447-16-8, Triphenylsulfonium-2,4,6-triisopropylphenylsulfonate 216679-67-3, Megafac R08 241806-75-7 258341-99-0
RL: TEM (Technical or engineered material use); USES (Uses)
(pos. resist composition)

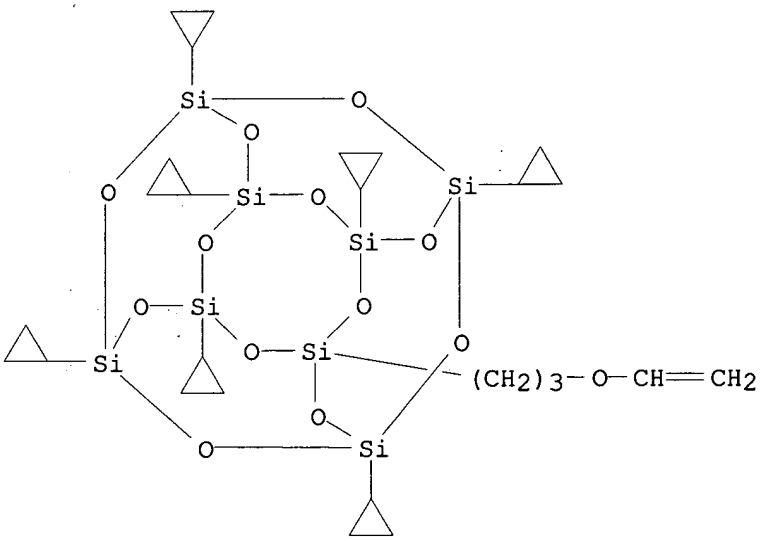
IT **757241-64-8P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos. **resist** composition)

RN 757241-64-8 HCAPLUS

CN 2-Butenedioic acid, bis(1,1-dimethylethyl) ester, polymer with heptacyclopropyl[3-(ethenyloxy)propyl]pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane and tetrahydro-2-oxo-3-furanyl 2-propenoate (9CI) (CA INDEX NAME)

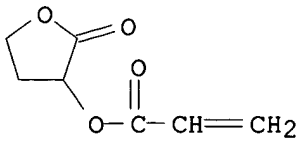
CM 1

CRN 757241-63-7
CMF C26 H44 O13 Si8



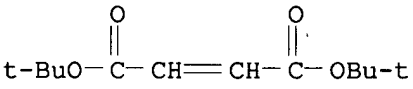
CM 2

CRN 328249-37-2
CMF C7 H8 O4



CM 3

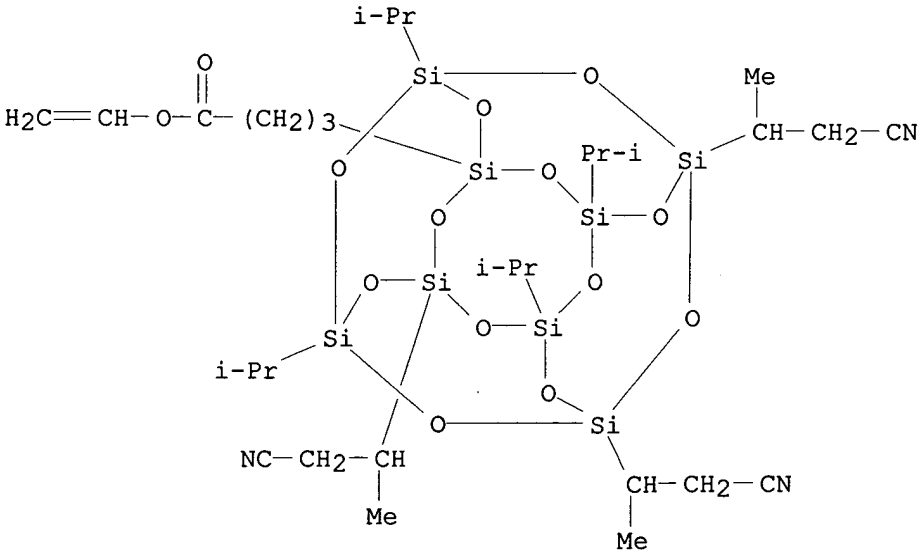
CRN 120515-31-3
CMF C12 H20 O4



IT **757241-69-3**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(pos. **resist** composition)
RN 757241-69-3 HCAPLUS
CN Butanoic acid, 4-[3,7,13-tris(2-cyano-1-methylethyl)-5,9,11,15-tetrakis(1-methylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxan-1-yl]-, ethenyl ester, polymer with 1,1-dimethylethyl 2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

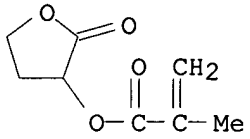
CM 1

CRN 757241-68-2
CMF C30 H55 N3 O14 Si8



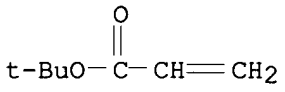
CM 2

CRN 195000-66-9
CMF C8 H10 O4



CM 3

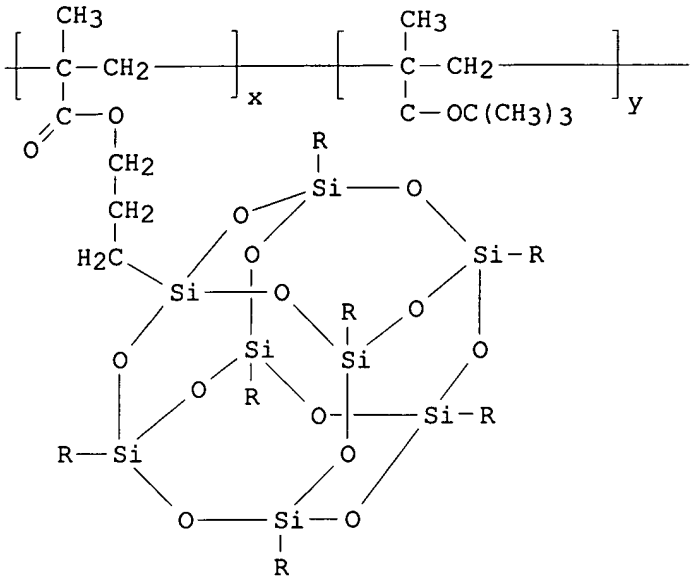
CRN 1663-39-4
CMF C7 H12 O2



L97 ANSWER 8 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:564073 HCAPLUS
DN 141:131274
TI Photoresist composition, containing silicon-containing organic binder polymer, with improved etching stability
IN Elian, Klaus; Eschbaumer, Christian; Jutgla, Angela; Heusinger, Nicole; Kern, Marion
PA Infineon Technologies A.-G., Germany
SO Ger. Offen., 11 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10259057	A1	20040715	DE 2002-10259057	20021217
PRAI	DE 2002-10259057		20021217		

GI



I

AB The invention relates to a photoresist composition, containing (a) a binder polymer represented by I (R = alkyl; x = 0.1-0.9; y = 0.1-0.9), (b) optionally a photoacid generator, and (c) a solvent.

IC ICM G03F007-075
ICS G03F001-00

CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)

ST photoresist compn chem amplified silicon contg binder polymer

IT Photoresists
(chemical amplified; photoresist composition, containing silicon-containing organic binder polymer, with improved etching stability)

IT **721929-06-2**
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; **photoresist** composition, containing silicon-containing organic binder polymer, with improved etching stability)

IT 175610-67-0
RL: CAT (Catalyst use); USES (Uses)
(photoacid generator; photoresist composition, containing silicon-containing organic binder polymer, with improved etching stability)

IT 108-65-6, 1-Methoxy-2-propylacetate
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; photoresist composition, containing silicon-containing organic binder polymer, with improved etching stability)

IT **721929-06-2**
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; **photoresist** composition, containing silicon-containing organic binder polymer, with improved etching stability)

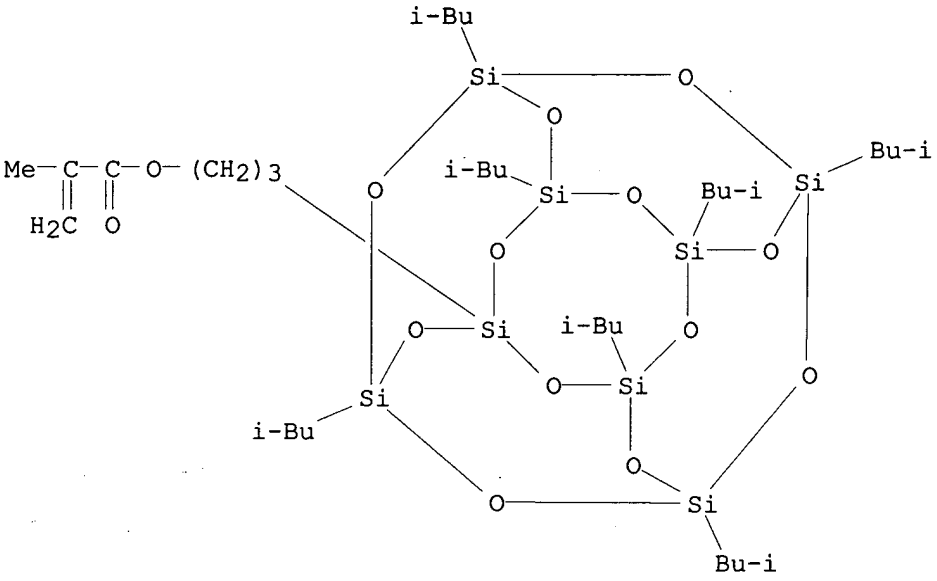
RN 721929-06-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with 3-[heptakis(2-methylpropyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl

]propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

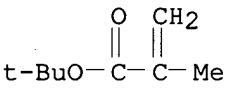
CM 1

CRN 307531-94-8
CMF C35 H74 O14 Si8



CM 2

CRN 585-07-9
CMF C8 H14 O2



L97 ANSWER 9 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:445927 HCAPLUS
DN 141:181855
TI Polyhedral Oligomeric Silsesquioxane (POSS) Based Resists: Material Design Challenges and Lithographic Evaluation at 157 nm
AU Tegou, Evangelia; Bellas, Vassilios; Gogolides, Evangelos; Argitis, Panagiotis; Eon, David; Cartry, Gilles; Cardinaud, Christophe
CS Institute of Microelectronics, NCSR Demokritos, Ag. Paraskevi Athens, 15310, Greece
SO Chemistry of Materials (2004), 16(13), 2567-2577
CODEN: CMATEX; ISSN: 0897-4756
PB American Chemical Society
DT Journal
LA English
AB The authors describe lithog. behavior and related material properties of a

new class of chemical amplified, pos. tone, silicon-containing methacrylate photoresists incorporating polyhedral oligomeric silsesquioxane (POSS) group as the etch-resistant component. POSS-bearing monomers were copolymd. with methacrylic acid (MA), tert-Bu methacrylate (TBMA), tert-Bu trifluoromethacrylate (TBTFMA), itaconic anhydride (IA), and 2-(trifluoromethyl)acrylic acid (TFMA), in various compns. A perfluorooctylsulfonate-based photoacid generator (PAG) was used to deprotect TBMA (or TBTFMA) to base soluble carboxylic acid by heating after exposure. XPS and angular XPS anal. were used to examine possible surface segregation phenomena. It was proven that POSS surface enrichment occurs for the POSS-TBMA copolymers while surface segregation may be reduced if suitable addnl. resist components are selected. The POSS-based resists were studied for 157-nm lithog. applications and found to have high sensitivity (< 10 mJ/cm2 under open field exposure), no silicon outgassing, and sub-100-nm resolution capabilities. Ninety nanometer patterns in 100-nm thick films were resolved. At present, their absorbance is high (.apprx.4 μm-1) for single-layer lithog. applications at 157 nm; however, high etch resistance in oxygen plasma makes them suitable for bilayer schemes.

CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)

ST polyhedral oligomeric silsesquioxane group polymethacrylate pos photoresist lithog

IT Positive photoresists
(chemical amplified; lithog. behavior and material properties of polymethacrylate photoresists containing polyhedral oligomeric silsesquioxane pendant group)

IT Contact angle
Dissolution
Glass transition temperature
IR spectra
Thickness
X-ray photoelectron spectra
(lithog. behavior and material properties of polymethacrylate photoresists containing polyhedral oligomeric silsesquioxane pendant group)

IT Etching
(plasma; lithog. behavior and material properties of polymethacrylate photoresists containing polyhedral oligomeric silsesquioxane pendant group)

IT **169699-57-4 302347-60-0 509106-75-6**
632330-68-8 632330-71-3
RL: PRP (Properties)
(lithog. behavior and material properties of polymethacrylate **photoresists** containing polyhedral oligomeric silsesquioxane pendant group)

IT **632330-72-4 736157-36-1 736157-38-3**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(lithog. behavior and material properties of polymethacrylate **photoresists** containing polyhedral oligomeric silsesquioxane pendant group)

IT 169391-91-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(monomer; polymerization with methacrylates)

IT 57840-38-7, Triphenylsulfonium hexafluoroantimonate 144089-15-6
RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generator; lithog. behavior and material properties of polymethacrylate photoresists containing polyhedral oligomeric silsesquioxane pendant group)

IT 7782-44-7, Oxygen, uses

RL: NUU (Other use, unclassified); USES (Uses)
(plasma etch; lithog. behavior and material properties of polymethacrylate photoresists containing polyhedral oligomeric silsesquioxane pendant group)

IT 509106-74-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(polymerization with methacrylates)

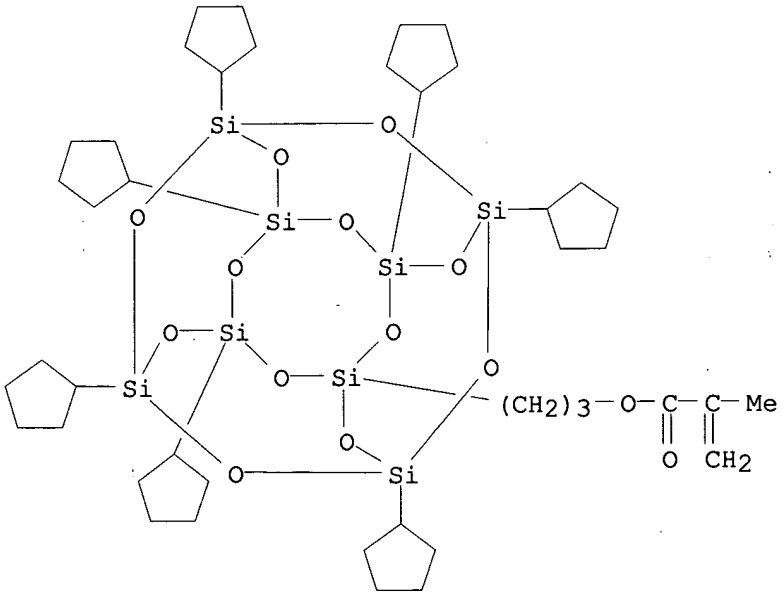
IT 108-10-1, Methyl isobutyl ketone 1320-67-8, Propylene glycol methyl ether
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; lithog. behavior and material properties of polymethacrylate photoresists containing polyhedral oligomeric silsesquioxane pendant group)

IT **169699-57-4 302347-60-0 509106-75-6**
632330-68-8 632330-71-3
RL: PRP (Properties)
(lithog. behavior and material properties of polymethacrylate **photoresists** containing polyhedral oligomeric silsesquioxane pendant group)

RN 169699-57-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8

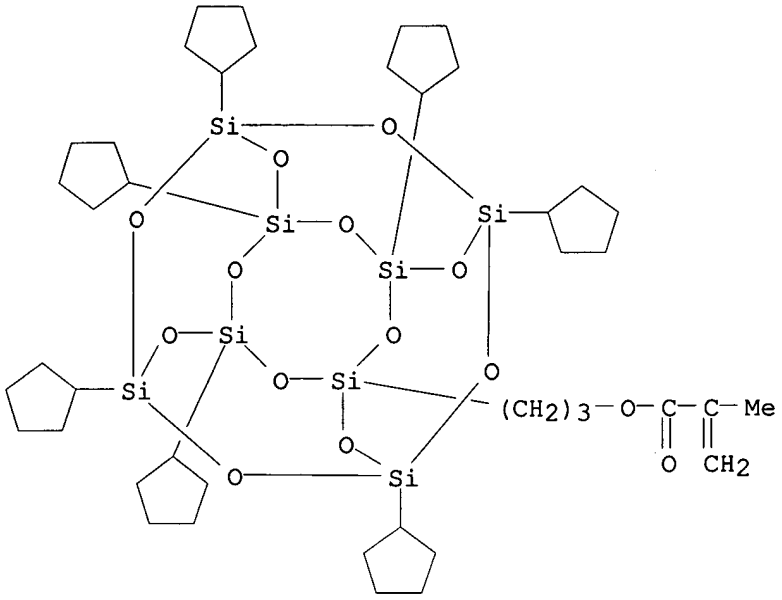


RN 302347-60-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

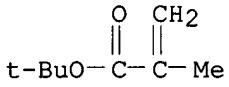
CRN 169391-91-7

CMF C42 H74 O14 Si8



CM 2

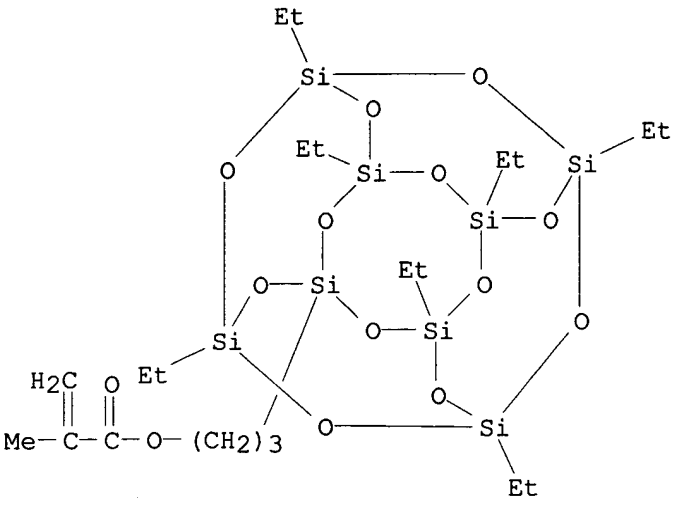
CRN 585-07-9
CMF C8 H14 O2



RN 509106-75-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

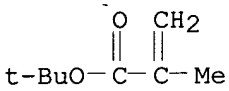
CM 1

CRN 509106-74-5
CMF C21 H46 O14 Si8



CM 2

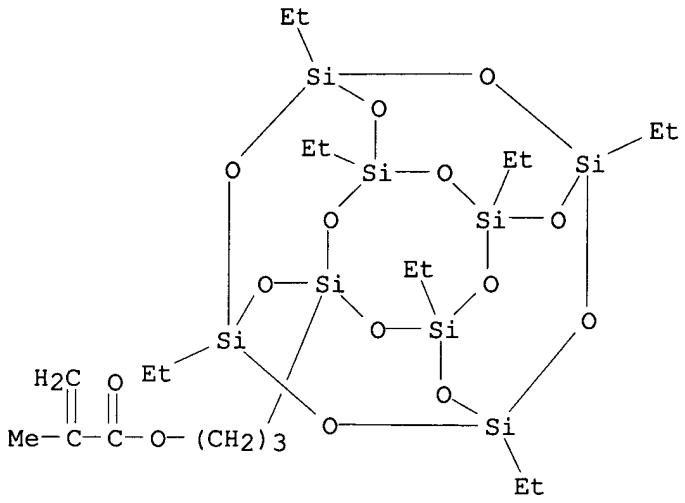
CRN 585-07-9
CMF C8 H14 O2



RN 632330-68-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

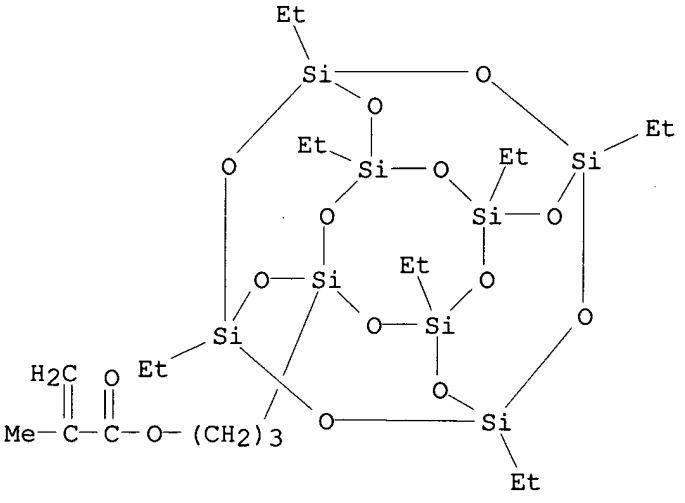
CRN 509106-74-5
CMF C21 H46 O14 Si8



RN 632330-71-3 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethylethyl 2-methyl-2-propenoate and 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

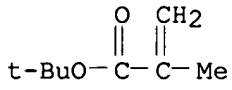
CM 1

CRN 509106-74-5
CMF C21 H46 O14 Si8



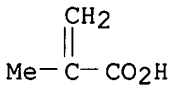
CM 2

CRN 585-07-9
CMF C8 H14 O2



CM 3

CRN 79-41-4
CMF C4 H6 O2



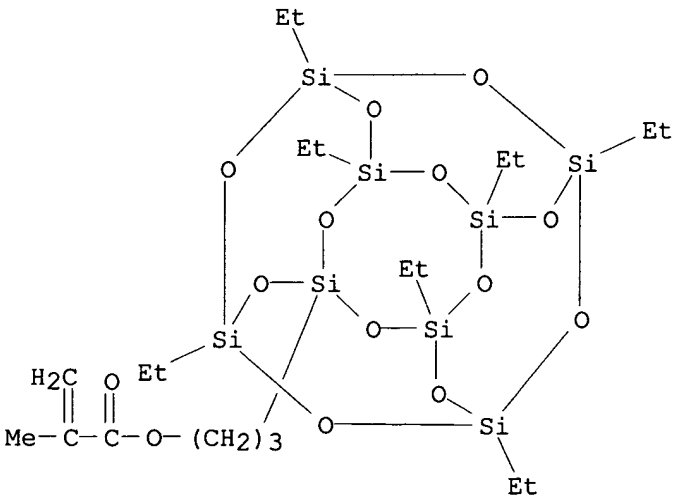
IT **632330-72-4 736157-36-1 736157-38-3**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(lithog. behavior and material properties of polymethacrylate **photoresists** containing polyhedral oligomeric silsesquioxane pendant group)

RN 632330-72-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with dihydro-3-methylene-2,5-furandione, 1,1-dimethylethyl 2-methyl-2-propenoate and 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

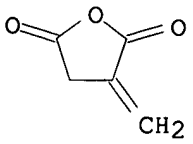
CRN 509106-74-5
CMF C21 H46 O14 Si8



CM 2

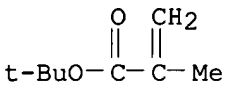
CRN 2170-03-8

CMF C5 H4 O3



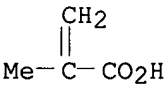
CM 3

CRN 585-07-9
CMF C8 H14 O2



CM 4

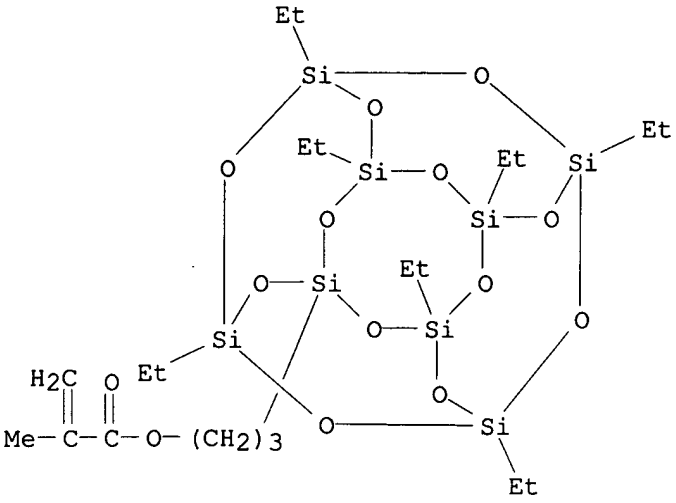
CRN 79-41-4
CMF C4 H6 O2



RN 736157-36-1 HCAPLUS
CN 2-Propenoic acid, 3,3-difluoro-2-(trifluoromethyl)-, polymer with 1,1-dimethylethyl 2-methyl-2-propenoate and 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

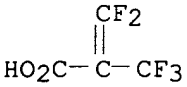
CM 1

CRN 509106-74-5
CMF C21 H46 O14 Si8



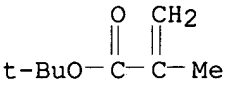
CM 2

CRN 684-37-7
CMF C4 H F5 O2



CM 3

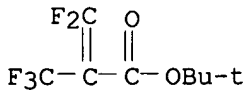
CRN 585-07-9
CMF C8 H14 O2



RN 736157-38-3 HCAPLUS
CN 2-Propenoic acid, 3,3-difluoro-2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer with 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate and 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

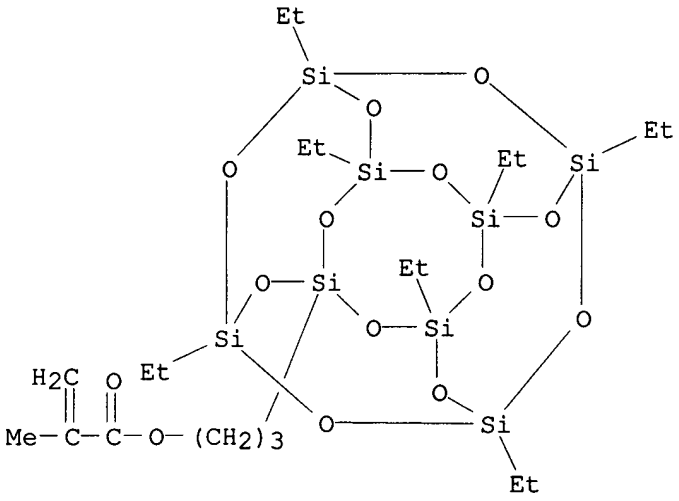
CM 1

CRN 736157-37-2
CMF C8 H9 F5 O2



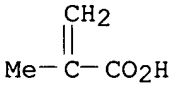
CM 2

CRN 509106-74-5
CMF C21 H46 O14 Si8



CM 3

CRN 79-41-4
CMF C4 H6 O2



RE.CNT 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

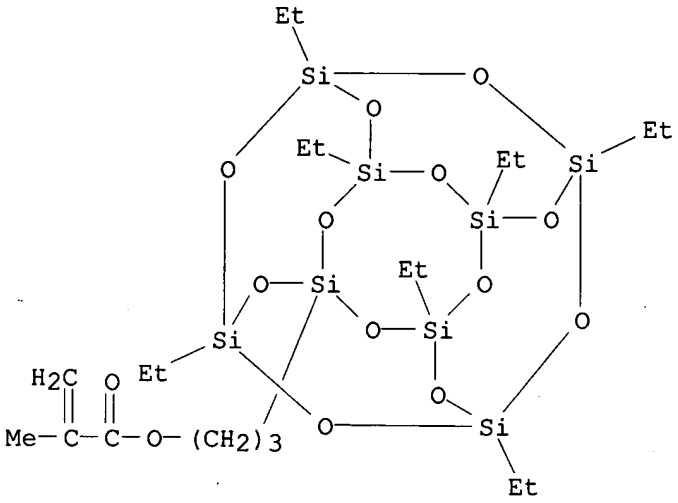
L97 ANSWER 10 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:419457 HCAPLUS
DN 142:122952
TI Polyhedral oligomeric silsesquioxane (POSS) acrylate copolymers for microfabrication: properties and formulation of resist materials
AU Tegou, E.; Bellas, V.; Gogolides, E.; Argitis, P.
CS NCSR "Demokritos", Institute of Microelectronics, Athens, 15310, Greece
SO Microelectronic Engineering (2004), 73-74, 238-243
CODEN: MIENEF; ISSN: 0167-9317
PB Elsevier Science B.V.
DT Journal

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

LA English
AB Novel polymers containing polyhedral oligomeric silsesquioxane (POSS) pendant groups have been synthesized and evaluated as components of resist formulations. Random copolymers of polymerizable ethyl-POSS containing monomers with various acrylate type monomers including tert-Bu methacrylate and 2-(trifluoromethyl) acrylic acid, were used in pos., aqueous base-developable resist formulations and evaluated at thicknesses in the range of 100 nm. Copolymers with optimized monomer composition provide materials with good film forming properties, and high sensitivity at 157 nm (1-10 mJ/cm2 under open field exposure). High resolution patterning under these conditions has shown potential for sub 100 nm lithog. upon further material optimization. Moreover, pattern transfer studies have shown that 100 nm thick films of POSS containing materials, having .apprx.9% silicon content provide the necessary oxygen plasma resistance for use as bilayer resists.
CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
ST polyhedral oligomeric silsesquioxane POSS acrylate copolymers microfabrication property formulation
IT Silsesquioxanes
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(acrylic; polyhedral oligomeric silsesquioxane acrylate copolymers for resists)
IT Contact angle
Glass transition temperature
Photolithography
Positive photoresists
(polyhedral oligomeric silsesquioxane acrylate copolymers for resists)
IT **632330-72-4 820241-85-8 820241-86-9**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyhedral oligomeric silsesquioxane acrylate copolymers for **resists**)
IT **632330-72-4 820241-85-8 820241-86-9**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyhedral oligomeric silsesquioxane acrylate copolymers for **resists**)
RN 632330-72-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, polymer with dihydro-3-methylene-2,5-furandione, 1,1-dimethylethyl 2-methyl-2-propenoate and 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

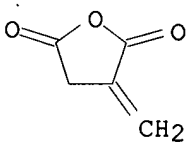
CM 1

CRN 509106-74-5
CMF C21 H46 O14 Si8



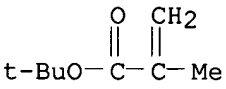
CM 2

CRN 2170-03-8
CMF C5 H4 O3



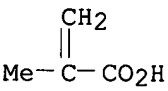
CM 3

CRN 585-07-9
CMF C8 H14 O2



CM 4

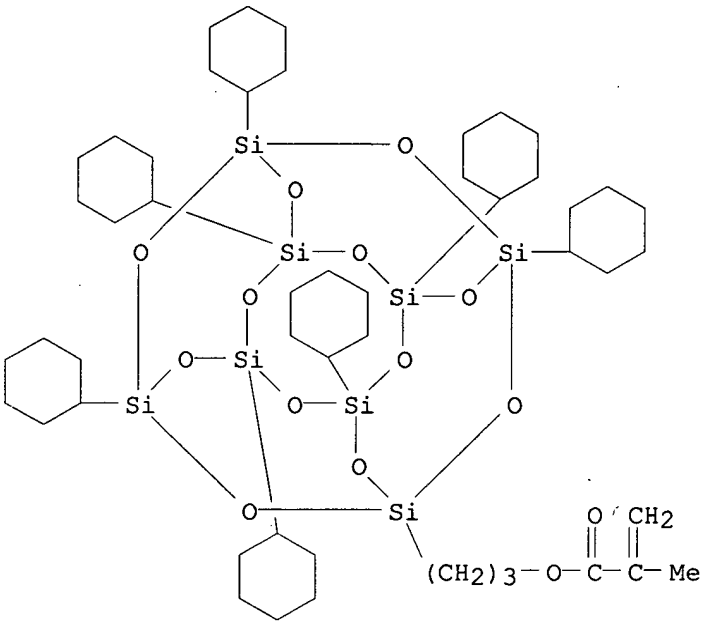
CRN 79-41-4
CMF C4 H6 O2



RN 820241-85-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with 3-(heptacyclohexylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

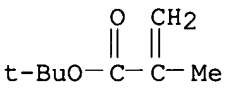
CM 1

CRN 169391-90-6
CMF C49 H88 O14 Si8



CM 2

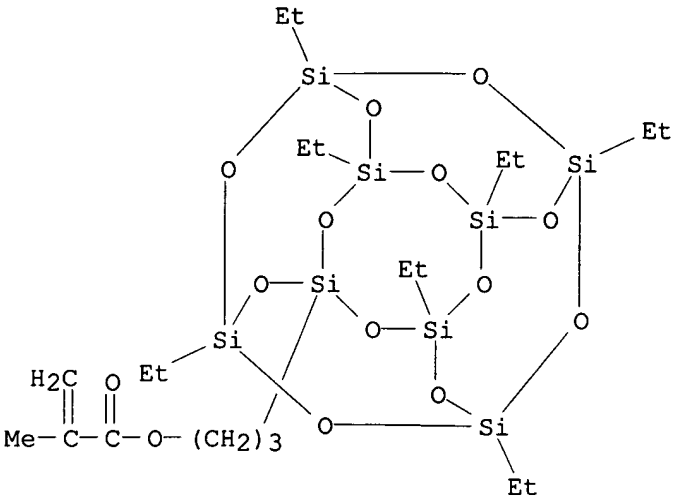
CRN 585-07-9
CMF C8 H14 O2



RN 820241-86-9 HCAPLUS
CN 2-Propenoic acid, 2-(trifluoromethyl)-, polymer with 1,1-dimethylethyl 2-methyl-2-propenoate and 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

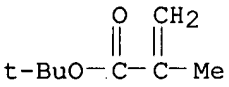
CM 1

CRN 509106-74-5
CMF C21 H46 O14 Si8



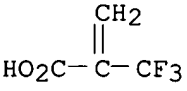
CM 2

CRN 585-07-9
CMF C8 H14 O2



CM 3

CRN 381-98-6
CMF C4 H3 F3 O2



RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L97 ANSWER 11 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:392710 HCAPLUS
DN 140:414936
TI Novel organosilicon copolymer and photoresist compositions for deep UV bilayer system
IN De Binod, B.; Malik, Sanjay; Dilocker, Stephanie J.; Dimov, Ognian N.
PA Arch Specialty Chemicals, Inc., USA
SO PCT Int. Appl., 74 pp.
CODEN: PIXXD2
DT Patent
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004040371	A2	20040513	WO 2003-US34832	20031031
	WO 2004040371	A3	20040715		
	W: JP, KR, SG				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
	US 2004137362	A1	20040715	US 2003-699298	20031031
PRAI	US 2002-422781P	P	20021031		

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Disclosed are novel copolymers suitable for forming the top layer photoimagable coating in a deep UV, particularly a 193 nm and 248 nm, bilayer resist system providing high resolution photolithog. Chemical amplified photoresist composition comprise an organosilicon moieties suitable for use in the binder resin for photoimagable etching resistant photoresist composition that is suitable as a material for use in ArF and Krf photolithog. Novel copolymer include a fist repeating unit of one or more units represented by formulas I, II or III (R1 = H, methyl; R2 = C1-20-alkyl, C1-20-fluoroalkyl; R3 = C1-20-alkyl; R4 = R5-Si(R6)-R7, R5, R6, R7 = C1-20-alkyl, C1-20-fluoroalkyl and as further described in the claims; m = 2-10).

IC ICM G03F

CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)

ST organosilicon copolymer photoresist compn UV ArF KrF etching resistant

IT Photolithography
Photoresists
(UV; organosilicon copolymer and photoresist compns. for deep UV bilayer system)

IT **607357-61-9P 688328-39-4P 688328-40-7P**
688328-41-8P 688328-42-9P 688328-44-1P
688328-45-2P 688328-46-3P 688328-47-4P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(organosilicon copolymer and **photoresist** compns. for deep UV bilayer system)

IT **607357-61-9P 688328-39-4P 688328-40-7P**
688328-41-8P 688328-42-9P 688328-44-1P
688328-45-2P 688328-46-3P 688328-47-4P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(organosilicon copolymer and **photoresist** compns. for deep UV bilayer system)

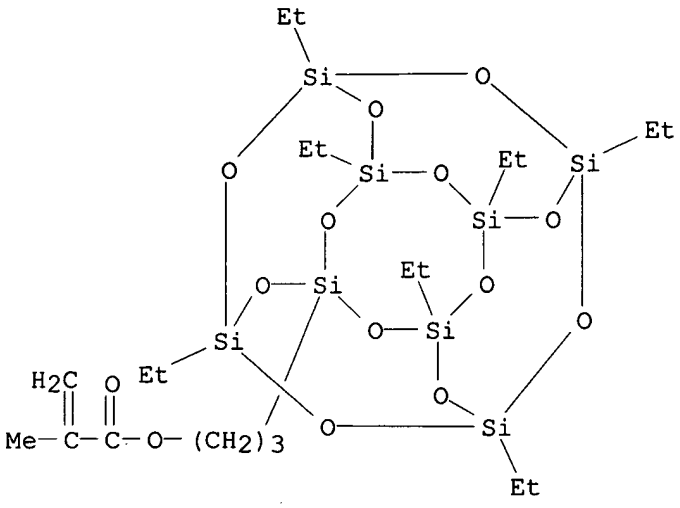
RN 607357-61-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with 1,1-dimethylethyl 2-propenoate, 2,5-furandione and trimethyl-2-propenylsilane (9CI) (CA INDEX NAME)

CM 1

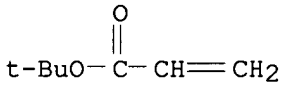
CRN 509106-74-5

CMF C21 H46 O14 Si8



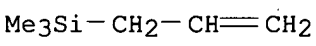
CM 2

CRN 1663-39-4
CMF C7 H12 O2



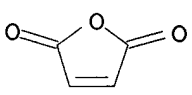
CM 3

CRN 762-72-1
CMF C6 H14 Si



CM 4

CRN 108-31-6
CMF C4 H2 O3

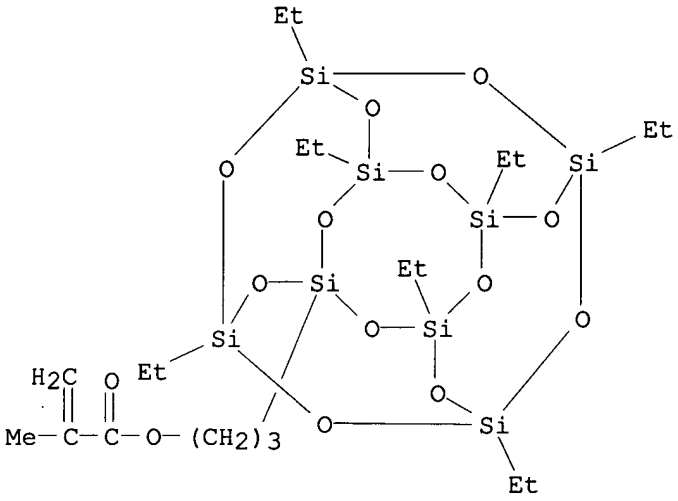


RN 688328-39-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3,5-dihydroxytricyclo[3.3.1.13,7]dec-1-yl

ester, polymer with 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasil oxanyl)propyl 2-methyl-2-propenoate, 1-methyl-1-tricyclo[3.3.1.13,7]dec-1-ylethyl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

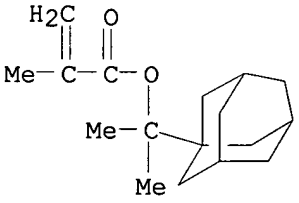
CM 1

CRN 509106-74-5
CMF C21 H46 O14 Si8



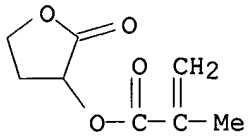
CM 2

CRN 279218-76-7
CMF C17 H26 O2



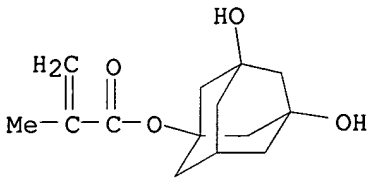
CM 3

CRN 195000-66-9
CMF C8 H10 O4



CM 4

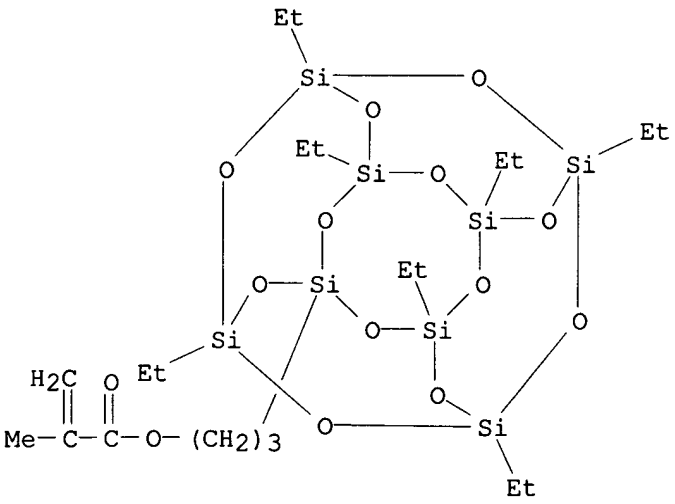
CRN 115522-15-1
CMF C14 H20 O4



RN 688328-40-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with 2,5-furandione, 1-methyl-1-tricyclo[3.3.1.13,7]dec-1-ylethyl 2-methyl-2-propenoate and trimethyl-2-propenylsilane (9CI) (CA INDEX NAME)

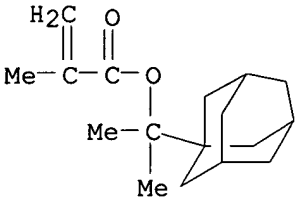
CM 1

CRN 509106-74-5
CMF C21 H46 O14 Si8



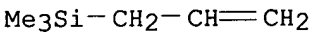
CM 2

CRN 279218-76-7
CMF C17 H26 O2



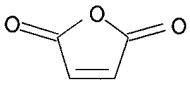
CM 3

CRN 762-72-1
CMF C6 H14 Si



CM 4

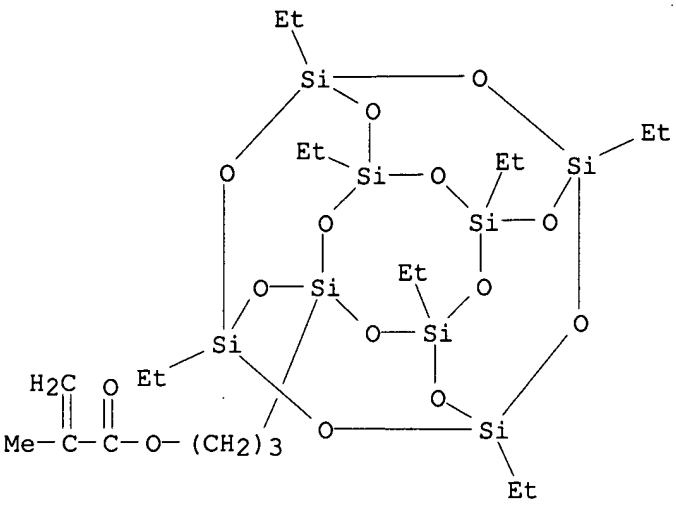
CRN 108-31-6
CMF C4 H2 O3



RN 688328-41-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with 2,5-furandione, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl 2-methyl-2-propenoate and 1-methyl-1-tricyclo[3.3.1.13,7]dec-1-ylethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

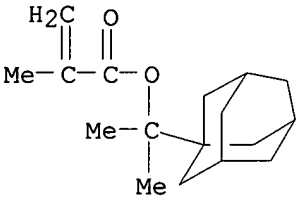
CM 1

CRN 509106-74-5
CMF C21 H46 O14 Si8



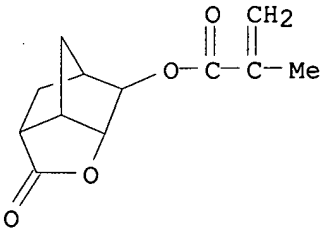
CM 2

CRN 279218-76-7
CMF C17 H26 O2



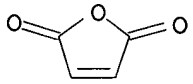
CM 3

CRN 254900-07-7
CMF C12 H14 O4



CM 4

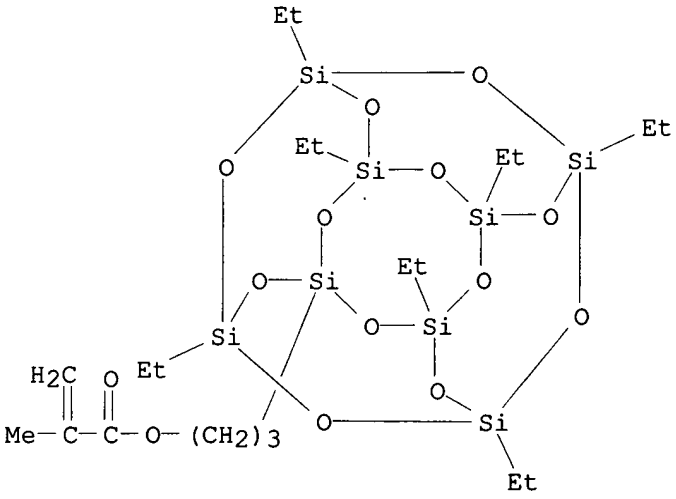
CRN 108-31-6
CMF C4 H2 O3



RN 688328-42-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl 2-methyl-2-propenoate and 1-methyl-1-tricyclo[3.3.1.13,7]dec-1-ylethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

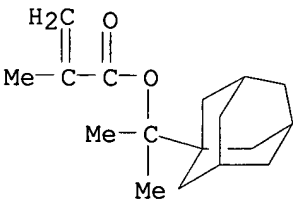
CM 1

CRN 509106-74-5
CMF C21 H46 O14 Si8



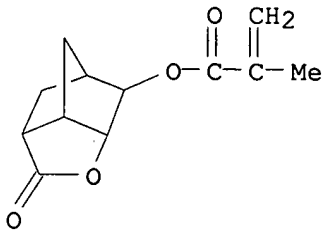
CM 2

CRN 279218-76-7
CMF C17 H26 O2



CM 3

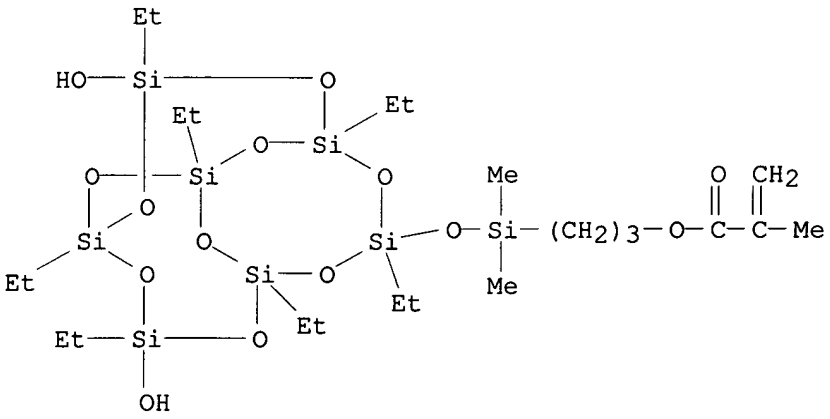
CRN 254900-07-7
CMF C12 H14 O4



RN 688328-44-1 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-[[(1,3,5,7,9,11,14-heptaethyl-7,14-dihydroxytricyclo[7.3.3.15,11]heptasiloxan-3-yl)oxy]dimethylsilyl]propyl ester, polymer with hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl 2-methyl-2-propenoate and tetrahydro-2H-pyran-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

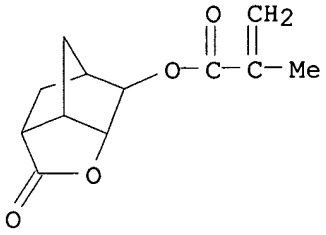
CM 1

CRN 688328-43-0
CMF C23 H54 O14 Si8



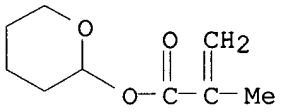
CM 2

CRN 254900-07-7
CMF C12 H14 O4



CM 3

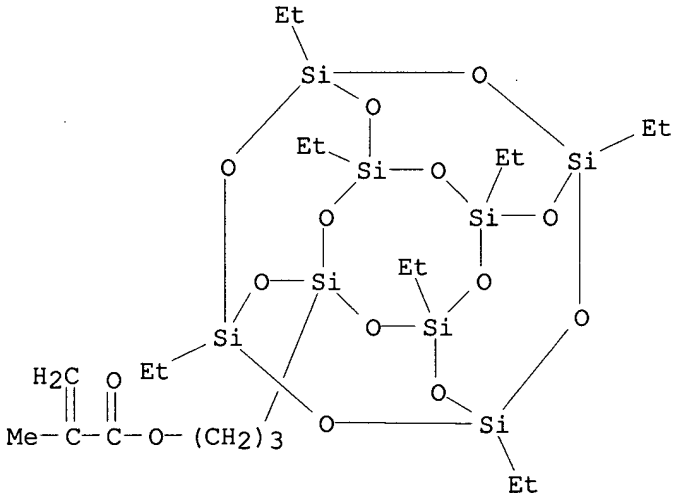
CRN 52858-59-0
CMF C9 H14 O3



RN 688328-45-2 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, polymer with 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate, 1-methyl-1-tricyclo[3.3.1.13,7]dec-1-ylethyl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

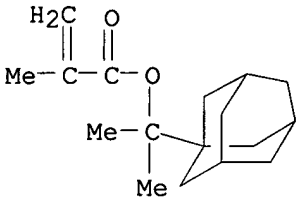
CM 1

CRN 509106-74-5
CMF C21 H46 O14 Si8



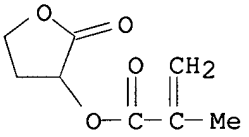
CM 2

CRN 279218-76-7
CMF C17 H26 O2



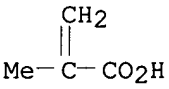
CM 3

CRN 195000-66-9
CMF C8 H10 O4



CM 4

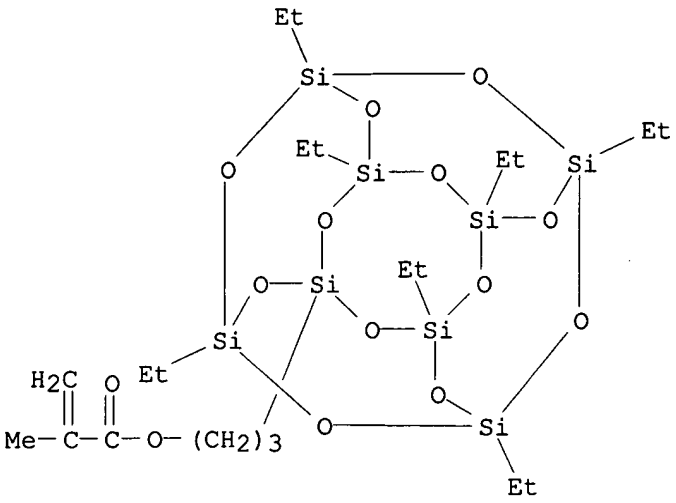
CRN 79-41-4
CMF C4 H6 O2



RN 688328-46-3 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with 4-ethenyl-α,α-bis(trifluoromethyl)benzenemethanol, 1-methyl-1-tricyclo[3.3.1.13,7]dec-1-ylethyl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

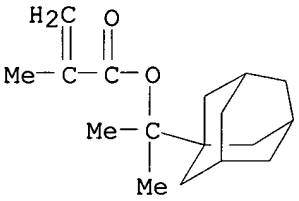
CM 1

CRN 509106-74-5
CMF C21 H46 O14 Si8



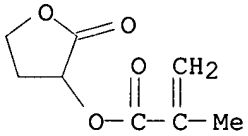
CM 2

CRN 279218-76-7
CMF C17 H26 O2



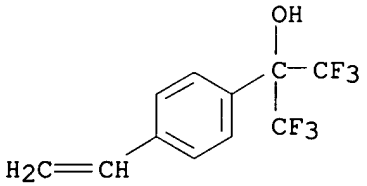
CM 3

CRN 195000-66-9
CMF C8 H10 O4



CM 4

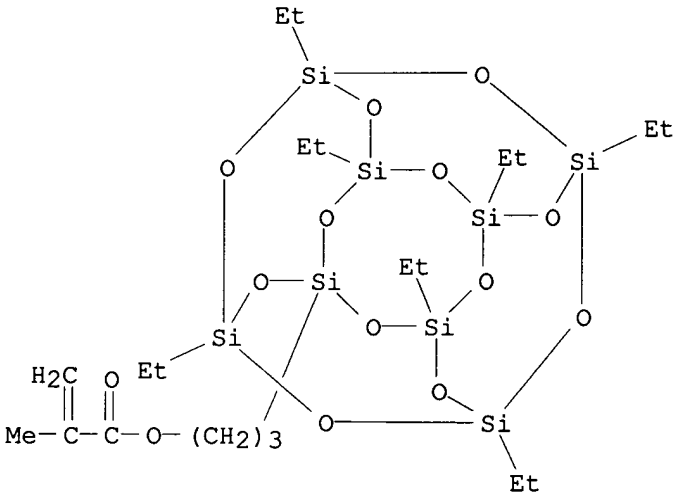
CRN 2386-82-5
CMF C11 H8 F6 O



RN 688328-47-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with 4-ethenylphenol, 1-methyl-1-tricyclo[3.3.1.13,7]dec-1-ylethyl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

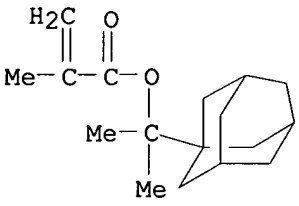
CM 1

CRN 509106-74-5
CMF C21 H46 O14 Si8



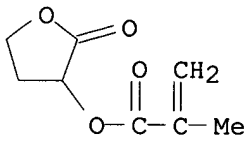
CM 2

CRN 279218-76-7
CMF C17 H26 O2



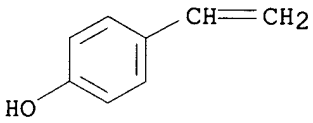
CM 3

CRN 195000-66-9
CMF C8 H10 O4



CM 4

CRN 2628-17-3
CMF C8 H8 O



L97 ANSWER 12 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:219905 HCAPLUS
DN 140:278421
TI Intermediate layer material composition for multilayer resist process and pattern formation process using the same
IN Uenishi, Kazuya; Sato, Kenichiro
PA Fuji Photo Film Co., Ltd., Japan
SO U.S. Pat. Appl. Publ., 37 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004053162	A1	20040318	US 2003-652320	20030902
	JP 2004094029	A2	20040325	JP 2002-256737	20020902
PRAI	JP 2002-256737	A	20020902		

AB The present invention provides an intermediate layer material composition for a multilayer resist process, which is soluble in an organic solvent, excellent in storage stability, and has no problem with regard to a footing shape, a pattern separation and a line edge roughness in patterning an upper resist, and a pattern formation process using the intermediate layer material composition, in which the intermediate layer material composition for a multilayer resist process, comprises a polymer (component A) containing a repeating unit having on a side chain thereof a specific structure containing a silicon atom-oxygen atom bond, and the pattern formation process using the same.

IC ICM G03F007-00
NCL 430270100; 430905000; 430913000; 430311000; 430330000; 522148000; 522172000; 524861000
CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 38, 76

ST intermediate layer material photoresist photolithog

IT Photolithography
Photoresists
(intermediate layer material composition for multilayer resist process and pattern formation process using same)

IT 220155-97-5 287925-55-7 667888-64-4 672926-27-1
RL: TEM (Technical or engineered material use); USES (Uses)
(acid generator; intermediate layer material composition for multilayer resist process containing)

IT 3089-11-0 17464-88-9 161679-94-3 185502-15-2 672926-25-9
672926-26-0
RL: TEM (Technical or engineered material use); USES (Uses)
(crosslinking agent; intermediate layer material composition for multilayer resist process containing)

IT **672926-06-6P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(intermediate layer material composition for multilayer **resist** process containing)

IT **672926-07-7 672926-08-8 672926-09-9**
672926-10-2 672926-11-3 672926-12-4
672926-14-6 672926-15-7 672926-17-9
672926-19-1 672926-20-4 672926-22-6
672926-24-8 672936-94-6 672936-96-8
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(intermediate layer material composition for multilayer **resist** process containing)

IT 108-94-1, Cyclohexanone, uses 110-43-0, 2-Heptanone 123-86-4, Butyl acetate 3852-09-3 98516-30-4, Propylene glycol monoethyl ether acetate
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent; intermediate layer material composition for multilayer resist process containing)

IT 216679-67-3, Megafac R08
RL: TEM (Technical or engineered material use); USES (Uses)
(surfactant; intermediate layer material composition for multilayer resist process containing)

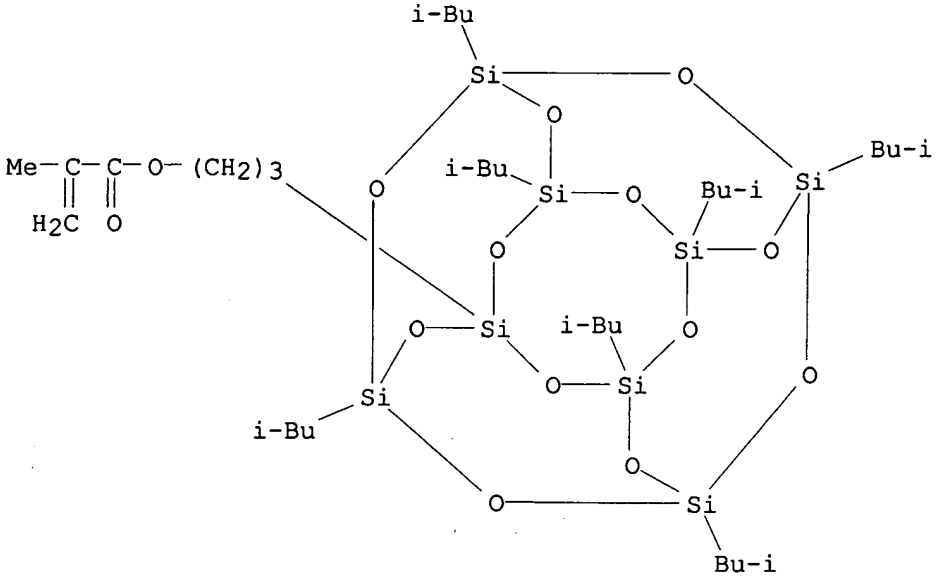
IT **672926-06-6P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(intermediate layer material composition for multilayer **resist** process containing)

RN 672926-06-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[heptakis(2-methylpropyl)pentacyclo[9.5.1.1 3,9.15,15.17,13]octasiloxanyl]propyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

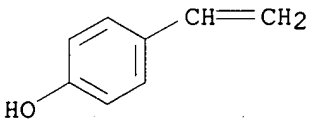
CM 1

CRN 307531-94-8
CMF C35 H74 O14 Si8



CM 2

CRN 2628-17-3
CMF C8 H8 O

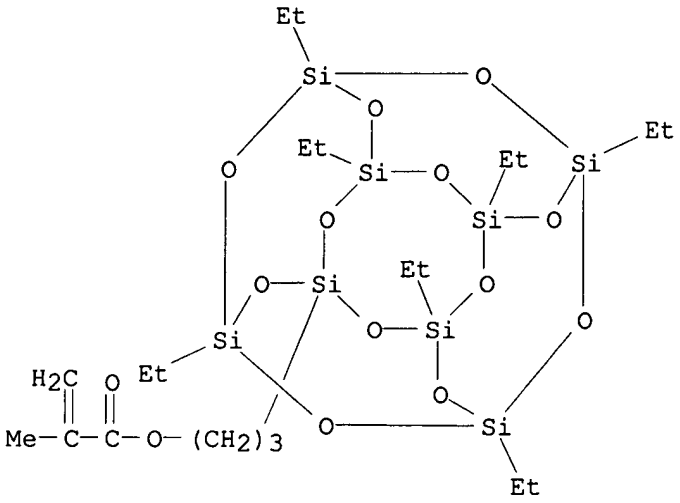


IT **672926-07-7 672926-08-8 672926-09-9**
672926-10-2 672926-11-3 672926-14-6
672926-15-7 672926-17-9 672926-19-1
672926-20-4 672926-22-6 672926-24-8
672936-94-6 672936-96-8
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(intermediate layer material composition for multilayer **resist** process containing)

RN 672926-07-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with 3-ethenylphenol (9CI) (CA INDEX NAME)

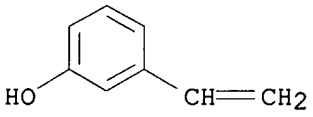
CM 1

CRN 509106-74-5
CMF C21 H46 O14 Si8



CM 2

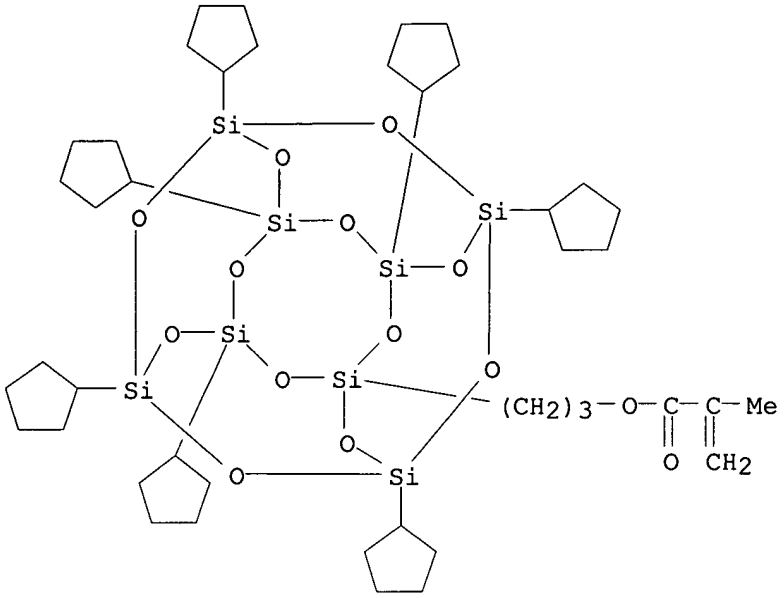
CRN 620-18-8
CMF C8 H8 O



RN 672926-08-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with 2-ethenylphenol (9CI) (CA INDEX NAME)

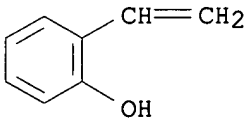
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



CM 2

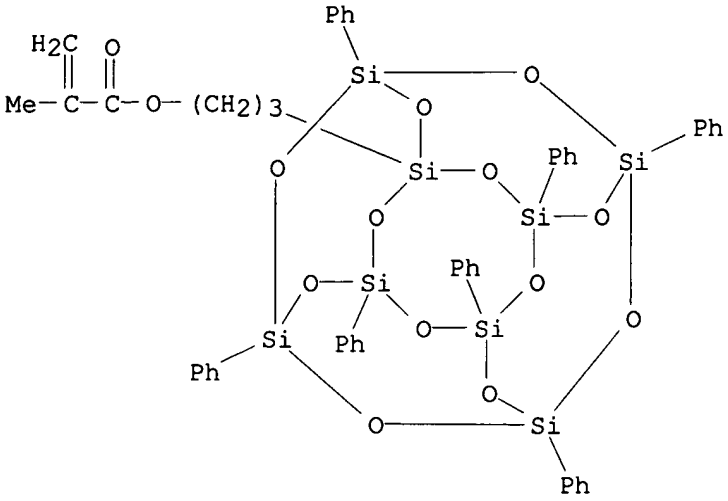
CRN 695-84-1
CMF C8 H8 O



RN 672926-09-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptaphenylpentacyclo[9.5.1.13,9.15,15.17, 13]octasiloxanyl)propyl ester, polymer with 1-ethenyl-4-methoxybenzene (9CI) (CA INDEX NAME)

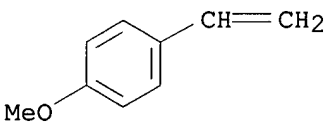
CM 1

CRN 433969-20-1
CMF C49 H46 O14 Si8



CM 2

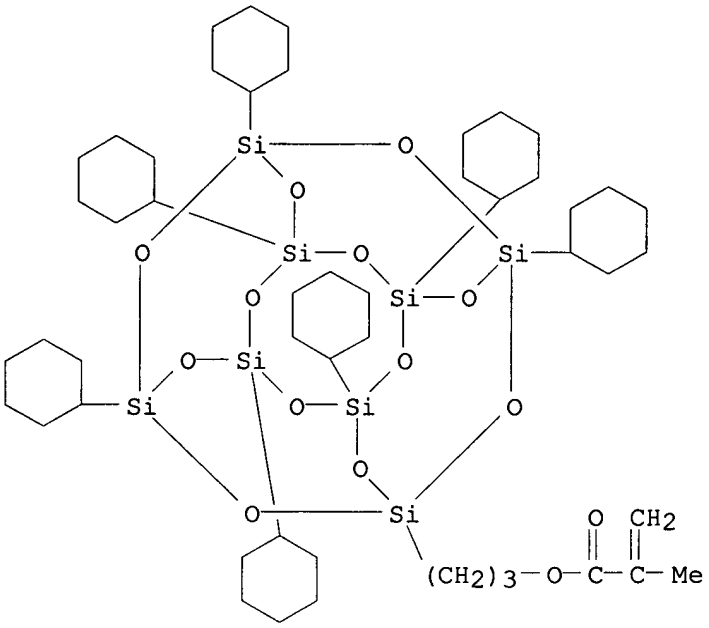
CRN 637-69-4
CMF C9 H10 O



RN 672926-10-2 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptacyclohexylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with 1-ethenyl-3-methoxybenzene (9CI) (CA INDEX NAME)

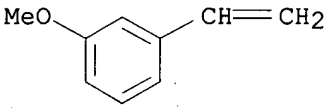
CM 1

CRN 169391-90-6
CMF C49 H88 O14 Si8



CM 2

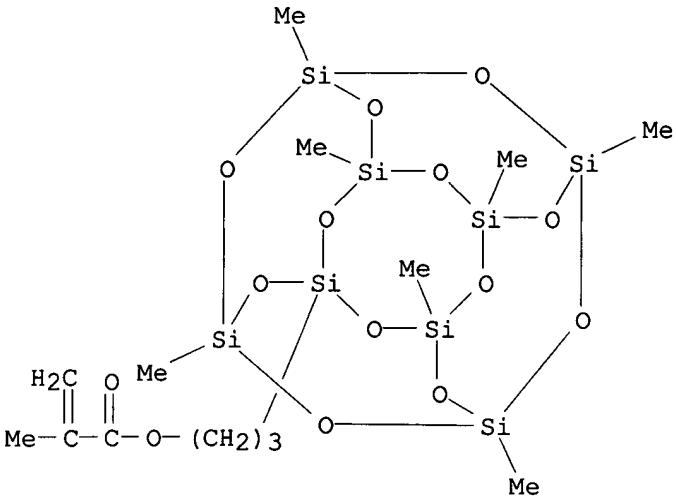
CRN 626-20-0
CMF C9 H10 O



RN 672926-11-3 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptamethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with 4-ethenyl-2-methoxyphenol (9CI) (CA INDEX NAME)

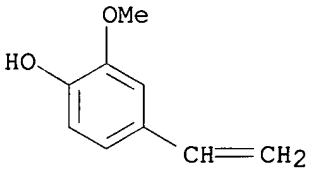
CM 1

CRN 326621-10-7
CMF C14 H32 O14 Si8



CM 2

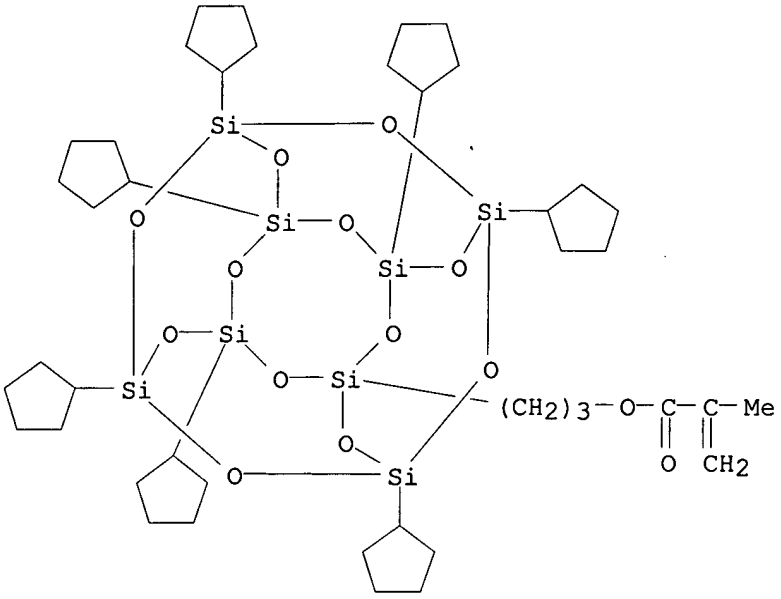
CRN 7786-61-0
CMF C9 H10 O2



RN 672926-14-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with 1-ethenyl-4-methoxynaphthalene (9CI) (CA INDEX NAME)

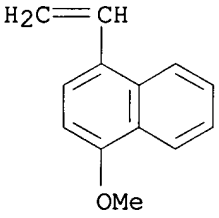
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



CM 2

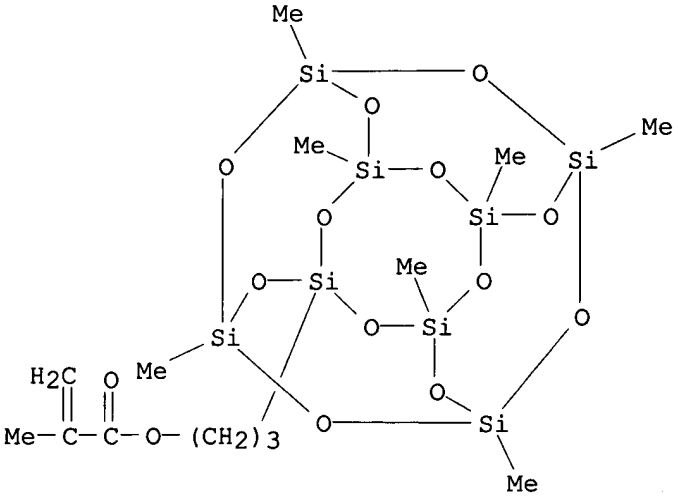
CRN 54447-91-5
CMF C13 H12 O



RN 672926-15-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptamethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with 1-ethenyl-4-methoxynaphthalene (9CI) (CA INDEX NAME)

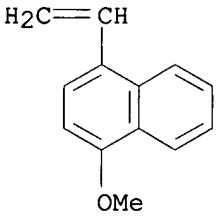
CM 1

CRN 326621-10-7
CMF C14 H32 O14 Si8



CM 2

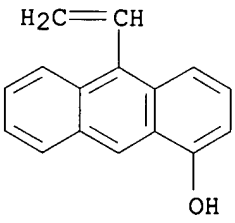
CRN 54447-91-5
CMF C13 H12 O



RN 672926-17-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with 10-ethenyl-1-anthracenol (9CI) (CA INDEX NAME)

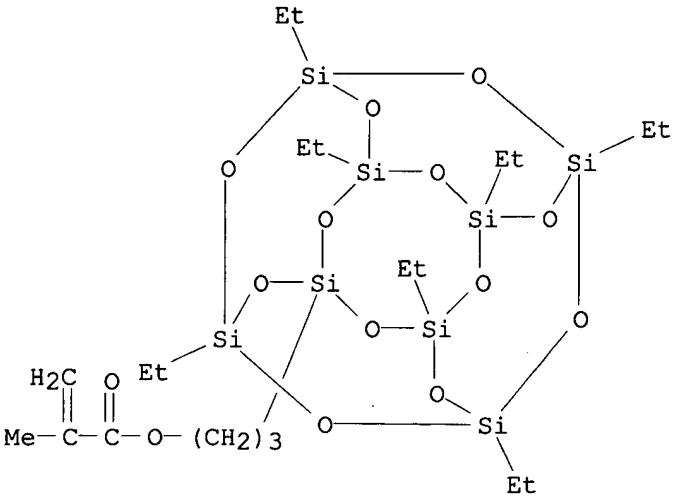
CM 1

CRN 672926-16-8
CMF C16 H12 O



CM 2

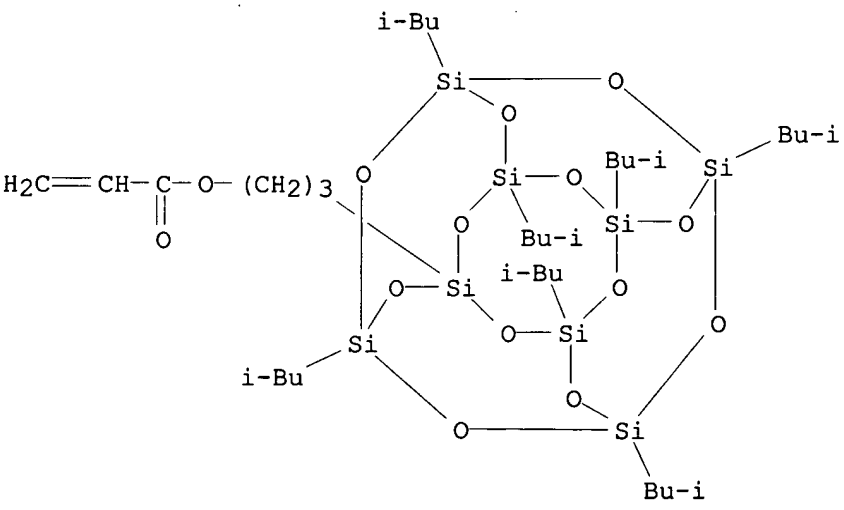
CRN 509106-74-5
CMF C21 H46 O14 Si8



RN 672926-19-1 HCAPLUS
CN 2-Propenoic acid, 3-[heptakis(2-methylpropyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl]propyl ester, polymer with 5-methylhexyl 2-propenoate (9CI) (CA INDEX NAME)

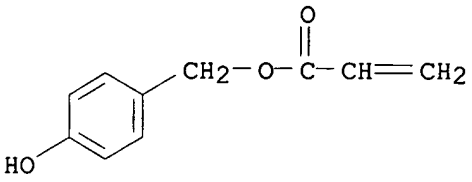
CM 1

CRN 672926-18-0
CMF C34 H72 O14 Si8



CM 2

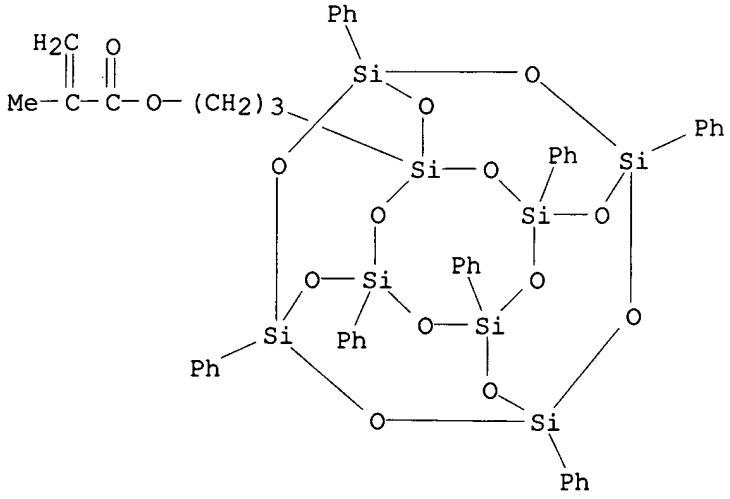
CRN 164982-99-4
CMF C10 H10 O3



RN 672926-20-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptaphenylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with 2-(4-methoxyphenyl)ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

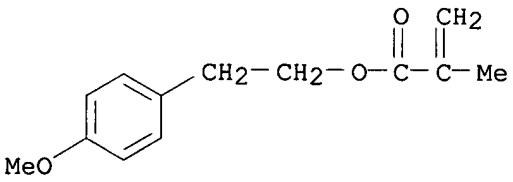
CM 1

CRN 433969-20-1
CMF C49 H46 O14 Si8



CM 2

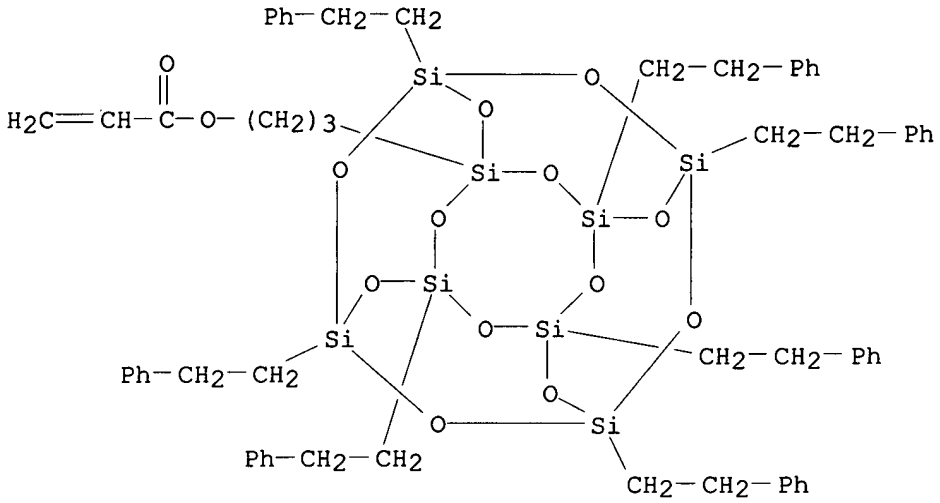
CRN 247020-24-2
CMF C13 H16 O3



RN 672926-22-6 HCAPLUS
CN 2-Propenoic acid, 3-[heptakis(2-phenylethyl)pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl]propyl ester, polymer with 2-(4-hydroxy-1-naphthalenyl)ethyl 2-propenoate (9CI) (CA INDEX NAME)

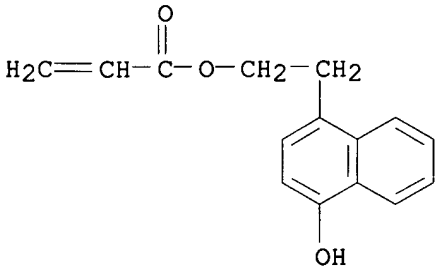
CM 1

CRN 783344-27-4
CMF C62 H72 O14 Si8



CM 2

CRN 672926-21-5
CMF C15 H14 O3

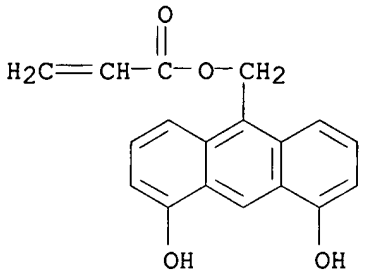


RN 672926-24-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptacyclohexylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with (4,5-dihydroxy-9-anthracenyl)methyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

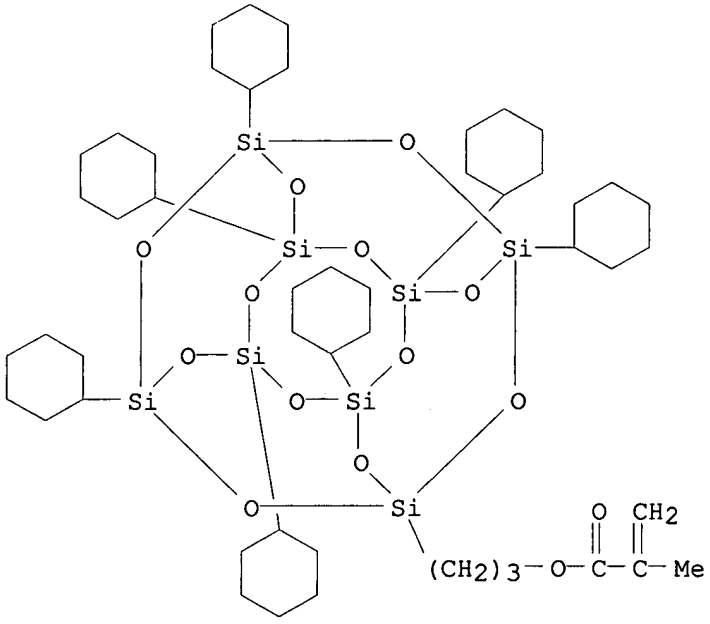
CRN 672926-23-7

CMF C18 H14 O4



CM 2

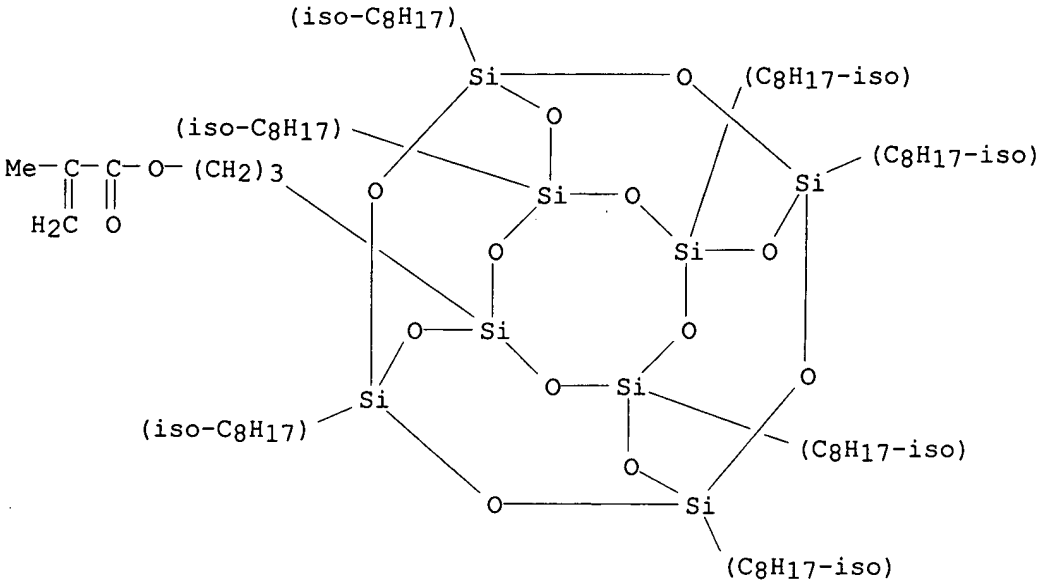
CRN 169391-90-6
CMF C49 H88 O14 Si8



RN 672936-94-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptaisooctylpentacyclo[9.5.1.13,9.15,15.1 7,13]octasiloxanyl)propyl ester, polymer with 4-ethenyl-1,2-benzenediol (9CI) (CA INDEX NAME)

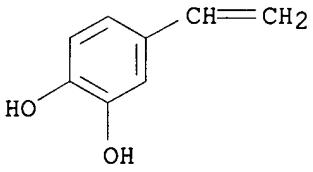
CM 1

CRN 783343-85-1
CMF C63 H130 O14 Si8
CCI IDS



CM 2

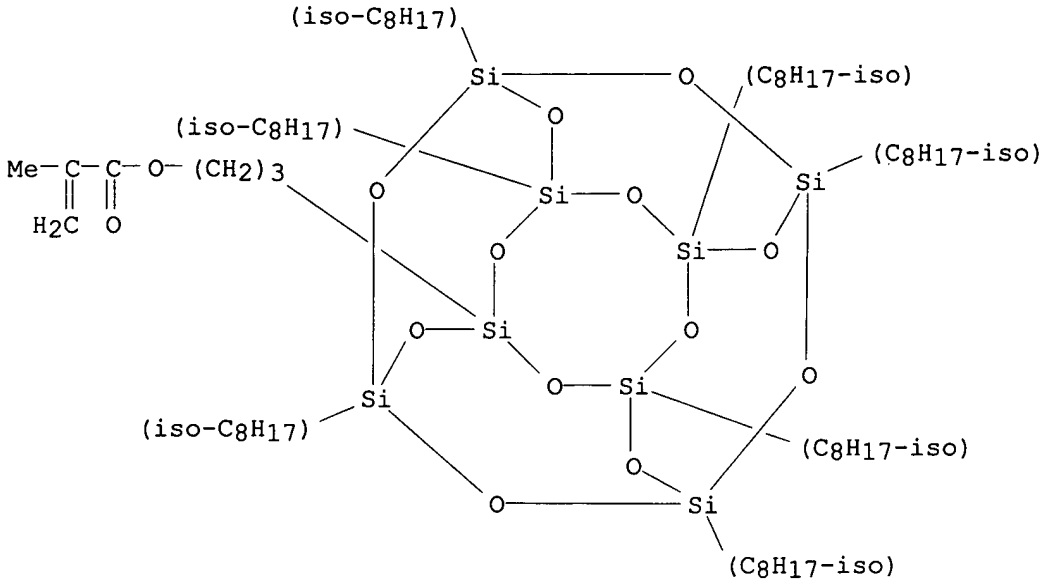
CRN 6053-02-7
CMF C8 H8 O2



RN 672936-96-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptaisooctylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with 2-(4-methoxy-9-anthracenyl)ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

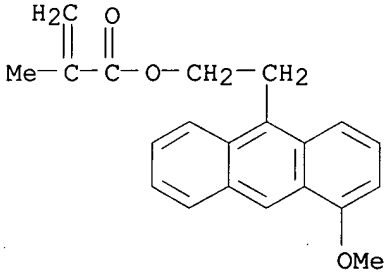
CM 1

CRN 783343-85-1
CMF C63 H130 O14 Si8
CCI IDS



CM 2

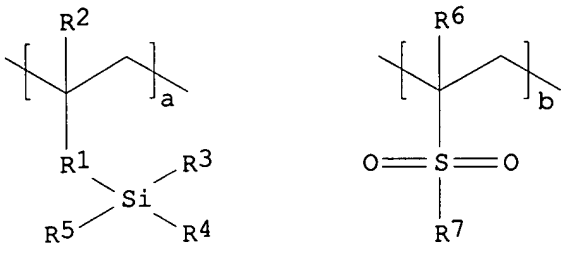
CRN 672936-95-7
CMF C21 H20 O3



L97 ANSWER 13 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:59649 HCAPLUS
DN 140:136424
TI Silicon-containing polymer, photoresist composition and patterning process
IN Hatakeyama, Jun; Takeda, Takanobu; Ishihara, Toshinobu
PA Japan
SO U.S. Pat. Appl. Publ., 36 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004013980	A1	20040122	US 2003-611261	20030702
	JP 2004083873	A2	20040318	JP 2003-180392	20030625

PRAI JP 2002-192910 A 20020702
GI



I

AB The present invention relates to silicon-containing polymers comprising recurring units of I (R1 = single bond, alkylene; R2 = hydrogen, alkyl; R3-5 = alkyl, haloalkyl, aryl or silicon-containing group; R6 = hydrogen, Me, cyano or -C(=O)OR8; R8 = hydrogen, alkyl, acid labile group; R7 = alkyl, -NR9R10, -OR11; R9-11 = hydrogen or alkyl; a, b = pos. nos. satisfying $0<a+b\leq 1$). Resist compns. comprising the polymers are sensitive to high-energy radiation and have a high sensitivity and resolution at a wavelength of less than 300 nm and improved resistance to oxygen plasma etching.

IC ICM H01B001-00
ICS C08J003-00

NCL 430311000; 252500000; 524262000

CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 35, 38

ST silicon polymer photoresist compn patterning process

IT Photolithography
Photoresists
(silicon-containing polymer, resist composition and patterning process)

IT 648895-18-5P 648895-19-6P 648895-20-9P 648895-21-0P 648895-22-1P
648895-23-2P 648895-24-3P 648895-25-4P 648895-26-5P
648895-27-6P 648895-28-7P 648895-29-8P
648895-30-1P 648895-31-2P 648895-33-4P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(silicon-containing polymer, **resist** composition for patterning process)

IT **648895-27-6P 648895-28-7P 648895-29-8P**
648895-30-1P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(silicon-containing polymer, **resist** composition for patterning process)

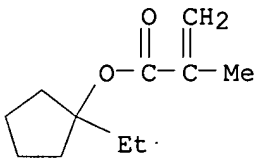
RN 648895-27-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with ethenylheptamethylcyclotetrasiloxane and methyl ethenesulfonate (9CI) (CA INDEX NAME)

CM 1

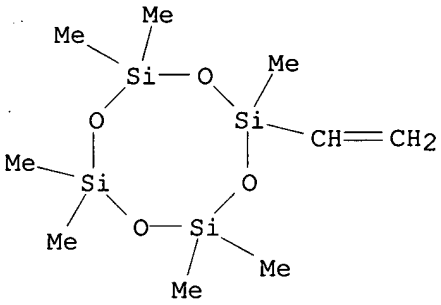
CRN 266308-58-1

CMF C11 H18 O2



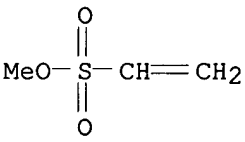
CM 2

CRN 3763-39-1
CMF C9 H24 O4 Si4



CM 3

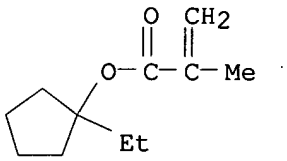
CRN 1562-31-8
CMF C3 H6 O3 S



RN 648895-28-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with heptamethyl-2-propenylcyclotetrasiloxane and methyl ethenesulfonate (9CI) (CA INDEX NAME)

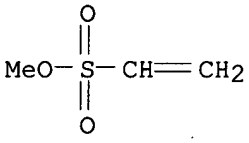
CM 1

CRN 266308-58-1
CMF C11 H18 O2



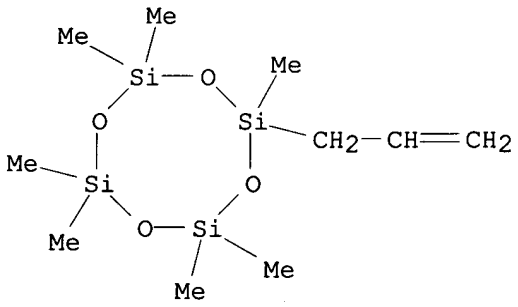
CM 2

CRN 1562-31-8
CMF C3 H6 O3 S



CM 3

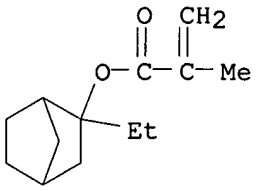
CRN 1087-58-7
CMF C10 H26 O4 Si4



RN 648895-29-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-ethylbicyclo[2.2.1]hept-2-yl ester, polymer with ethenylheptamethylcyclotetrasiloxane and methyl ethenesulfonate (9CI) (CA INDEX NAME)

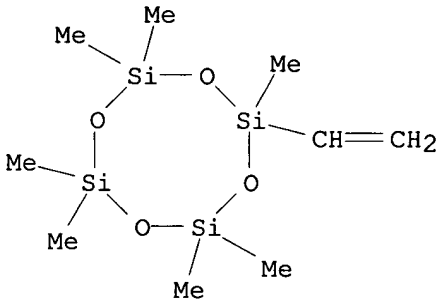
CM 1

CRN 330595-98-7
CMF C13 H20 O2



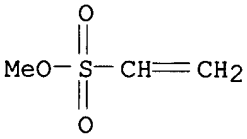
CM 2

CRN 3763-39-1
CMF C9 H24 O4 Si4



CM 3

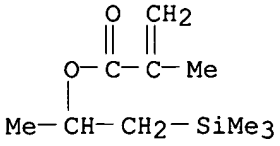
CRN 1562-31-8
CMF C3 H6 O3 S



RN 648895-30-1 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methyl-2-(trimethylsilyl)ethyl ester, polymer with ethenylheptamethylcyclotetrasiloxane and methyl ethenesulfonate (9CI) (CA INDEX NAME)

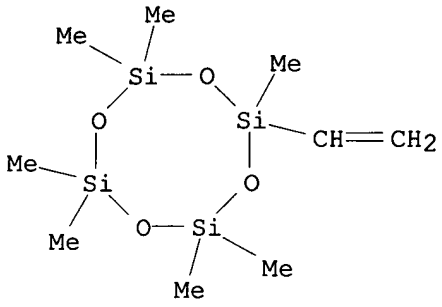
CM 1

CRN 409320-43-0
CMF C10 H20 O2 Si



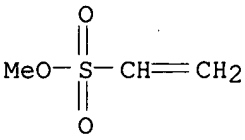
CM 2

CRN 3763-39-1
CMF C9 H24 O4 Si4



CM 3

CRN 1562-31-8
CMF C3 H6 O3 S



L97 ANSWER 14 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:1007692 HCAPLUS
DN 140:50319
TI Photoacid generating compounds, chemically amplified positive resist materials, and pattern forming method
IN Hatakeyama, Jun; Kobayashi, Tomohiro; Ohsawa, Youichi
PA Japan
SO U.S. Pat. Appl. Publ., 47 pp., Cont.-in-part of U.S. Pat. Appl. 2003 207,201.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2003235779	A1	20031225	US 2003-375773	20030227

US 2003207201 A1 20031106 US 2002-331785 20021227
PRAI JP 2001-397192 A 20011227
US 2002-331785 A2 20021227
OS MARPAT 140:50319

AB The invention provides a high-resolution resist material comprising an acid generator that has high sensitivity and high resolution with respect to high-energy rays of 300 nm or less, has small line-edge roughness, and is superior in heat stability and in shelf stability, and provides a pattern forming method that uses this resist material. The invention further provides a chemical amplified pos. resist material comprising a base resin, an acid generator and a solvent in which the acid generator generates an alkylimidic acid containing a fluorine group, and provides a pattern forming method comprising a step of applying the resist material to the substrate, a step of performing exposure to a high-energy ray of a wavelength of 300 nm or less through a photomask following heat treatment, and a step of performing development by a developing solution following heat treatment.

IC ICM G03C001-492
NCL 430270100
CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 38
ST photoacid generating compd chem amplified pos photoresist material pattern
IT Positive photoresists
(photoacid generating compds., chemical amplified pos. resist materials, and pattern forming method)
IT 601520-40-5P 635715-30-9P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(photoacid generating compds. for chemical amplified pos. resist materials)
IT 460731-17-3 460731-18-4 541547-03-9 601520-33-6 601520-34-7
601520-36-9 601520-37-0 601520-39-2 601520-42-7 601520-43-8
601520-45-0 601520-47-2 601520-49-4 601520-51-8
RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generating compds. for chemical amplified pos. resist materials)
IT 70-11-1, 2-Bromoacetophenone
RL: RCT (Reactant); RACT (Reactant or reagent)
(photoacid generating compds., chemical amplified pos. resist materials, and pattern forming method)
IT 19158-66-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(photoacid generating compds., chemical amplified pos. resist materials, and pattern forming method)
IT 110-01-0, Tetrahydrothiophene 129318-46-3, Bis(perfluoroethylsulfonyl)imide 191101-38-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of photoacid generating compds. for chemical amplified pos. resist materials)
IT 155040-27-0 158593-28-3 177034-75-2 200808-68-0 279244-15-4
279244-59-6 301153-46-8 326925-68-2 330596-02-6 330596-03-7
485819-00-9 485819-02-1 490040-72-7 502442-15-1 595558-21-7
601520-54-1 601520-57-4 601520-62-1 623932-37-6 635715-32-1
635715-34-3 635715-35-4 **635715-36-5 635715-38-7**
635715-39-8
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

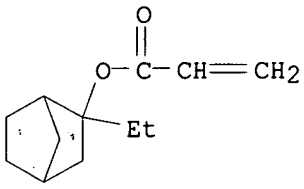
(resin; chemical amplified pos. **resist** materials containing)

IT **635715-36-5 635715-38-7 635715-39-8**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(resin; chemical amplified pos. **resist** materials containing)

RN 635715-36-5 HCAPLUS
CN 2-Propenoic acid, 2-ethylbicyclo[2.2.1]hept-2-yl ester, polymer with ethenylheptamethylcyclotetrasiloxane and 2,5-furandione (9CI) (CA INDEX NAME)

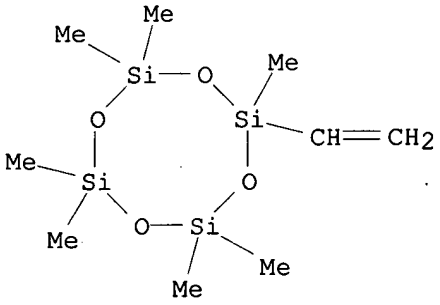
CM 1

CRN 449173-03-9
CMF C12 H18 O2



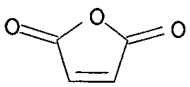
CM 2

CRN 3763-39-1
CMF C9 H24 O4 Si4



CM 3

CRN 108-31-6
CMF C4 H2 O3

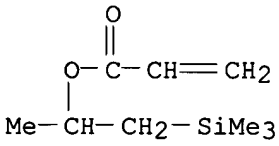


RN 635715-38-7 HCAPLUS
CN 2-Propenoic acid, 1-methyl-2-(trimethylsilyl)ethyl ester, polymer with

ethenylheptamethylcyclotetrasiloxane and 2,5-furandione (9CI) (CA INDEX NAME)

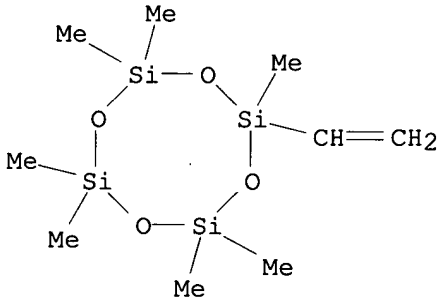
CM 1

CRN 635715-37-6
CMF C9 H18 O2 Si



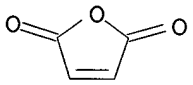
CM 2

CRN 3763-39-1
CMF C9 H24 O4 Si4



CM 3

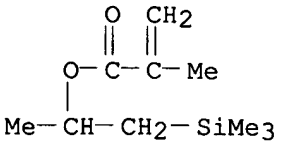
CRN 108-31-6
CMF C4 H2 O3



RN 635715-39-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(2,4,4,6,6,8,8-heptamethylcyclotetrasiloxan-2-yl)propyl ester, polymer with 2,5-furandione and 1-methyl-2-(trimethylsilyl)ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

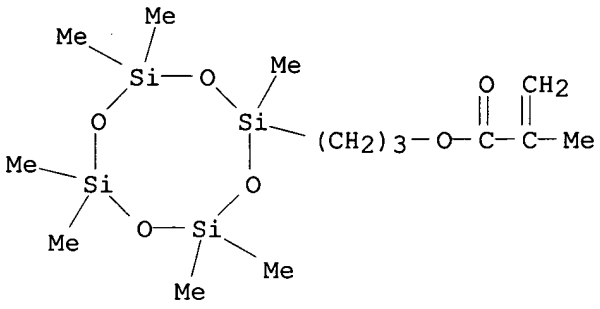
CM 1

CRN 409320-43-0
CMF C10 H20 O2 Si



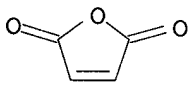
CM 2

CRN 110867-24-8
CMF C14 H32 O6 Si4



CM 3

CRN 108-31-6
CMF C4 H2 O3



L97 ANSWER 15 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:950586 HCAPLUS
DN 140:21273
TI Resist composition and patterning process
IN Hatakeyama, Jun; Kurihara, Hideshi; Takeda, Takanobu; Watanabe, Osamu
PA Japan
SO U.S. Pat. Appl. Publ., 32 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003224291	A1	20031204	US 2003-427939	20030502
	JP 2004027210	A2	20040129	JP 2003-124633	20030430
PRAI	JP 2002-130326	A	20020502		

AB Chemical amplified pos. photoresist compns. comprises a polymer obtained by copolymg. a silicon-containing monomer with a polar monomer having a value of LogP or c-LogP of up to 0.6 and optionally hydroxystyrene, a photoacid

generator and an organic solvent are sensitive to high-energy radiation and have a high sensitivity and resolution at a wavelength of less than 300 nm and improved resistance to oxygen plasma etching.

IC ICM G03F007-038
ICS G03F007-38; G03F007-40

NCL 430270100; 430330000; 430311000; 430313000

CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 35, 38

ST photoresist compn patterning process

IT Positive photoresists
(resist composition and patterning process)

IT 630417-20-8P 630417-22-0P 630417-24-2P **630417-26-4P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**photoresist** composition for patterning process)

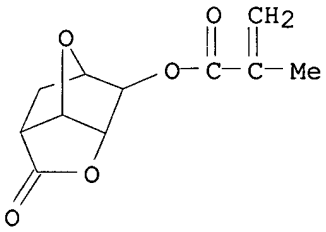
IT **630417-26-4P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**photoresist** composition for patterning process)

RN 630417-26-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol, 3-(2,4,4,6,6,8,8-heptamethylcyclotetrasiloxan-2-yl)propyl 2-methyl-2-propenoate and hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

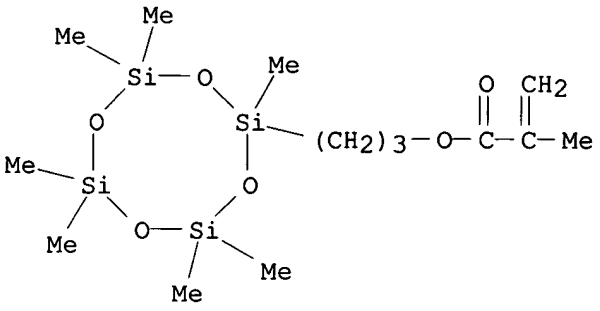
CM 1

CRN 274248-05-4
CMF C11 H12 O5



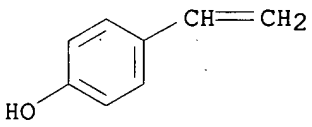
CM 2

CRN 110867-24-8
CMF C14 H32 O6 Si4



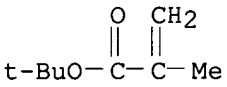
CM 3

CRN 2628-17-3
CMF C8 H8 O



CM 4

CRN 585-07-9
CMF C8 H14 O2



L97 ANSWER 16 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:890212 HCAPLUS
DN 139:388469
TI Thionium salt photoacid generators for chemically amplified resists and patterning method using the same
IN Osawa, Yoichi; Nishi, Tsunehiro; Kobayashi, Tomohiro
PA Shin-Etsu Chemical Industry Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 36 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003322964	A2	20031114	JP 2002-129876	20020501
PRAI	JP 2002-129876		20020501		

OS MARPAT 139:388469
AB The photoacid generators R1R2S+CH2R3C:CR4R5.Y- (I; R1, R2 = C1-6 unsubstituted or O-containing alkyl; R3-R5 = H, C1-6 alkyl, C6-12 aryl;

≥1 of R3-R5 are C6-12 aryl; Y- = C1-10 alkylsulfonate, C6-20 arylsulfonate, C2-10 bisalkylsulfonylimide, C3-12 trisalkylsulonylmethide) or R1R2S+CH2C6H5-nR7n.Y- (II; R1, R2, Y- = same as above; R7 = H, C1-6 alkyl, C1-6 alkoxy, NO2, F, Cl; n = 1-5), and pos. resists containing I or II and resins increasing alkali solubility by acid action are sep. claimed. UV (≤250 nm) or electron-beam lithog. on the resists, producing submicron pattens with good edge sharpness, is further claimed.

IC ICM G03F007-004
ICS G03F007-039; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 29, 38

ST thionium salt photoacid generator pos chem amplified resist; submicron UV photolithog thiacyclopentanium salt photoacid generator; electron beam lithog thionium salt photoacid generator

IT Positive photoresists
(UV; chemical amplified pos. resists containing thionium salt photoacid generators for submicron UV or electron-beam lithog.)

IT Catalysts
(photochem.; chemical amplified pos. resists containing thionium salt photoacid generators for submicron UV or electron-beam lithog.)

IT Electron beam resists
(pos.-working; chemical amplified pos. resists containing thionium salt photoacid generators for submicron UV or electron-beam lithog.)

IT Photolithography
(submicron UV; chemical amplified pos. resists containing thionium salt photoacid generators for submicron UV or electron-beam lithog.)

IT Electron beam lithography
(submicron; chemical amplified pos. resists containing thionium salt photoacid generators for submicron UV or electron-beam lithog.)

IT 155040-27-0 301153-46-8 326925-68-2 330596-02-6 330596-03-7
485819-02-1 490040-72-7 595558-21-7 601520-54-1 601520-62-1
623932-20-7 623932-22-9 623932-23-0 623932-24-1 623932-26-3
623932-27-4 623932-29-6 623932-30-9 **623932-32-1**
623932-33-2 **623932-35-4** 623932-36-5 623932-37-6
623932-39-8 623932-41-2
RL: TEM (Technical or engineered material use); USES (Uses)
(assumed monomers; chemical amplified pos. **resists** containing thionium salt photoacid generators for submicron UV or electron-beam lithog.)

IT 343775-57-5P 623932-16-1P 623932-17-2P 623932-18-3P 623932-19-4P
RL: CAT (Catalyst use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified pos. resists containing thionium salt photoacid generators for submicron UV or electron-beam lithog.)

IT 39153-56-5 144317-44-2 197447-16-8 227199-92-0 301664-71-1
RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)
(chemical amplified pos. resists containing thionium salt photoacid generators for submicron UV or electron-beam lithog.)

IT 60872-03-9P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(chemical amplified pos. resists containing thionium salt photoacid generators for submicron UV or electron-beam lithog.)

IT 98-59-9, p-Toluenesulfonyl chloride 98-67-9, 4-Phenolsulfonic acid 100-39-0, Benzyl bromide 110-01-0, Tetrahydrothiophene 4392-24-9, Cinnamyl bromide 29420-49-3, Potassium perfluorobutanesulfonate 152894-10-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(chemical amplified pos. resists containing thionium salt photoacid generators
for submicron UV or electron-beam lithog.)

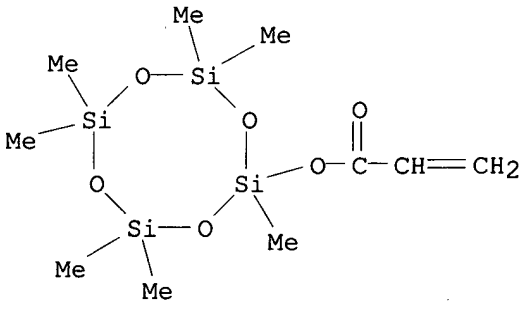
IT **623932-32-1 623932-33-2 623932-35-4**
RL: TEM (Technical or engineered material use); USES (Uses)
(assumed monomers; chemical amplified pos. **resists** containing thionium salt photoacid generators for submicron UV or electron-beam lithog.)

RN 623932-32-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-ethylbicyclo[2.2.1]hept-2-yl ester, polymer with 2,5-furandione and 2,4,4,6,6,8,8-heptamethylcyclotetrasiloxan-2-yl 2-propenoate (9CI) (CA INDEX NAME)

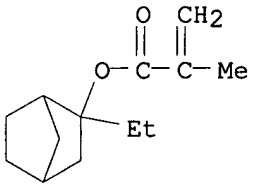
CM 1

CRN 623932-31-0
CMF C10 H24 O6 Si4



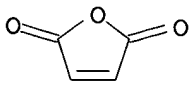
CM 2

CRN 330595-98-7
CMF C13 H20 O2



CM 3

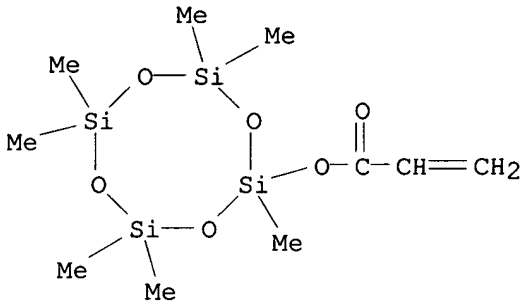
CRN 108-31-6
CMF C4 H2 O3



RN 623932-33-2 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methyl-2-(trimethylsilyl)ethyl ester, polymer with 2,5-furandione and 2,4,4,6,6,8,8-heptamethylcyclotetrasiloxan-2-yl 2-propenoate (9CI) (CA INDEX NAME)

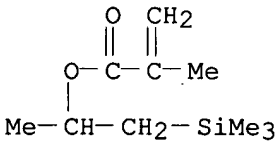
CM 1

CRN 623932-31-0
CMF C10 H24 O6 Si4



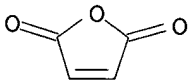
CM 2

CRN 409320-43-0
CMF C10 H20 O2 Si



CM 3

CRN 108-31-6
CMF C4 H2 O3

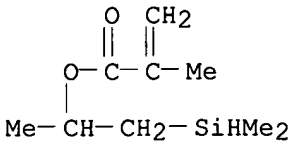


RN 623932-35-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-(dimethylsilyl)-1-methylethyl ester, polymer with 2,5-furandione and 2,4,4,6,6,8,8-heptamethylcyclotetrasiloxan-

2-yl 2-propenoate (9CI) (CA INDEX NAME)

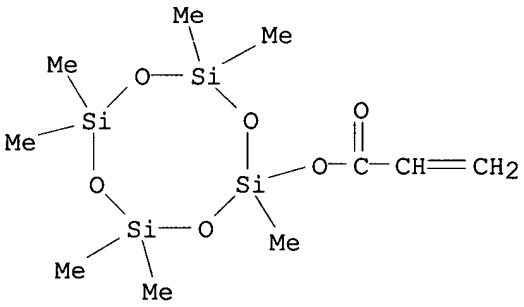
CM 1

CRN 623932-34-3
CMF C9 H18 O2 Si



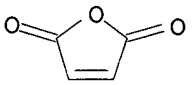
CM 2

CRN 623932-31-0
CMF C10 H24 O6 Si4



CM 3

CRN 108-31-6
CMF C4 H2 O3



L97 ANSWER 17 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:742146 HCAPLUS
DN 140:101908
TI A new nanocomposite resist for low and high voltage electron beam lithography
AU Azam Ali, M.; Gonsalves, Kenneth E.; Agrawal, Ankur; Jeyakumar, Augustin; Henderson, Clifford L.
CS Department of Chemistry and Cameron Applied Research Center, Polymer Chemistry NanoTechnology Laboratory, The University of North Carolina-Charlotte (UNCC), Charlotte, NC, 28223, USA
SO Microelectronic Engineering (2003), 70(1), 19-29

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

CODEN: MIENEF; ISSN: 0167-9317
PB Elsevier Science B.V.
DT Journal
LA English
AB A novel nanocomposite photoresist was synthesized and characterized for use in both low and high voltage electron-beam lithog. This resist system is shown to display the ideal combination of both enhanced etch resistance and enhanced sensitivity required to satisfy both low and high voltage patterning applications. Resist sensitivity was enhanced by the direct incorporation of a photoacid generating monomer into the resist polymer backbone while the etch resistance of the material was improved by copolymn. with polyhedral oligo silsesquioxane methacrylate monomer.
CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
ST electron beam lithog chem amplification pos nanocomposite resist; photoacid generator group silsesquioxane methacrylate polymer electron resist
IT Surface roughness
(lithog. properties of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)
IT Silsesquioxanes
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(lithog. properties of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)
IT Etching
(plasma, reactive ion; lithog. properties of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)
IT Etching kinetics
(plasma; lithog. properties of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)
IT Electron beam resists
(pos.-working, chemical amplified; lithog. properties of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)
IT Thickness
X-ray resists
(x-ray sensitivity of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for electron-beam exposures)
IT 75-59-2, Tetramethylammonium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)
(developer; lithog. properties of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)
IT **461699-74-1**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(lithog. properties of nanocomposite **resist** containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)
IT 75-46-7, Trifluoromethane 7782-44-7, Oxygen, uses
RL: NUU (Other use, unclassified); USES (Uses)
(plasma; lithog. properties of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for low-

and high voltage electron-beam exposures)

IT 7631-86-9, Silica, uses
RL: NUU (Other use, unclassified); USES (Uses)
(substrate; lithog. properties of nanocomposite resist containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)

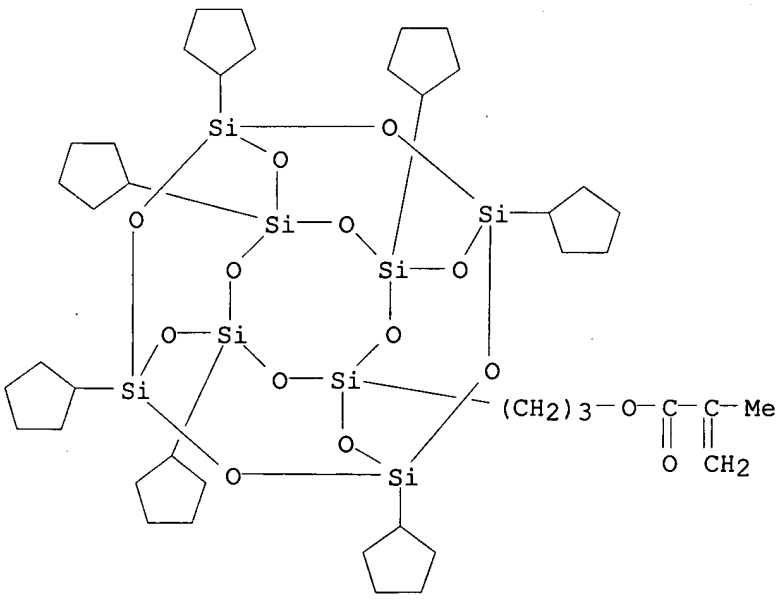
IT **461699-74-1**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(lithog. properties of nanocomposite **resist** containing both photoacid generator and silicon-containing groups in polymer chain for low- and high voltage electron-beam exposures)

RN 461699-74-1 HCAPLUS

CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with 1,1-dimethylethyl 2-methyl-2-propenoate, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate, methyl 2-methyl-2-propenoate and 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

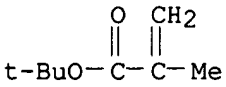
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



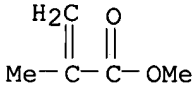
CM 2

CRN 585-07-9
CMF C8 H14 O2



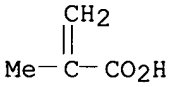
CM 3

CRN 80-62-6
CMF C5 H8 O2



CM 4

CRN 79-41-4
CMF C4 H6 O2

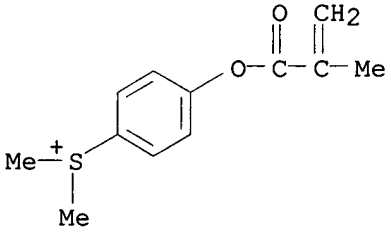


CM 5

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

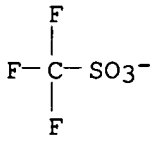
CM 6

CRN 141718-72-1
CMF C12 H15 O2 S



CM 7

CRN 37181-39-8
CMF C F3 O3 S

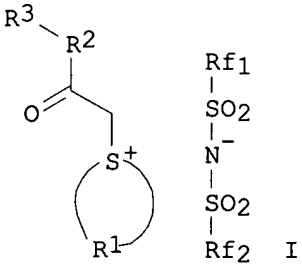


RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L97 ANSWER 18 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:734749 HCAPLUS
DN 139:267981
TI Photosensitive acid-generating agent, chemically amplified positively-working photoresist material, and patterning method
IN Hatakeyama, Jun; Kobayashi, Tomohiro; Osawa, Yoichi
PA Shin-Etsu Chemical Industry Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 49 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2003261529	A2	20030919	JP 2002-369145	20021220
PRAI JP 2001-397192	A	20011227		

OS MARPAT 139:267981
GI



AB The acid-generating agent is a sulfonium salt represented as I [R1 = C2-8 alkylene; R2 = direct bond, O, N, C1-4 alkylene; R3 = (substituted) linear, branched, or cyclic alkyl, aryl; Rf1 and/or Rf2 = F-containing C1-20 linear, branched, or cyclic alkyl which may involve OH, carbonyl, ester, ether or aryl; Rf1 and Rf2 may form rings]. The chemical amplified pos. working photoresist contains, a base resin, a solvent, and an agent releasing an alkylimidic acid, preferably I or R4nM+ Rf1SO2NSO2Rf2- [R4 = linear, branched, or cyclic alkyl (involving carbonyl, ester, ether, thioether, or double bond), aryl, aralkyl; M = iodonium, sulfonium; n = 2, 3]. The photoresist material is applied on a substrate, heated, exposed to high-energy radiation with wavelength ≤300 nm through a photomask, heated, and developed to form a pattern. The pattern with high resolution, small line edge roughness, and heat and storage stability is obtained by the method.
IC ICM C07C311-48

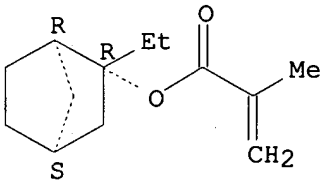
ICS C07D333-46; C07D335-02; G03F007-004; G03F007-039; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 23, 38
ST chem amplified pos working photoresist; photosensitive acid generating agent photoresist; fluoroalkylimidic acid generating sulfonium compd photoresist
IT Photoresists
(photosensitive fluoroalkylimidic acid-generating agent for chemical amplified pos.-working photoresist material)
IT Polyalkenamers
RL: TEM (Technical or engineered material use); USES (Uses)
(photosensitive fluoroalkylimidic acid-generating agent for chemical amplified pos.-working photoresist material)
IT 81-25-4 828-51-3 122752-67-4 308141-03-9 359635-45-3 601520-70-1
RL: MOA (Modifier or additive use); USES (Uses)
(dissoln. inhibitor; photosensitive fluoroalkylimidic acid-generating agent for chemical amplified pos.-working photoresist material containing)
IT 70-11-1, 2-Bromoacetophenone 110-01-0, Tetrahydrothiophene 129318-46-3, Bis(perfluoroethylsulfonyl)imide
RL: RCT (Reactant); RACT (Reactant or reagent)
(for preparation of photosensitive acid-generating agent for chemical amplified pos.-working photoresist material)
IT 39847-39-7P 601520-67-6P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(intermediate; for preparation of photosensitive acid-generating agent for chemical amplified pos.-working photoresist material)
IT 460731-17-3 460731-18-4 541547-03-9 601520-33-6 601520-34-7 601520-36-9 601520-37-0 601520-39-2 601520-42-7 601520-43-8 601520-45-0 601520-47-2 601520-49-4 601520-51-8
RL: CAT (Catalyst use); USES (Uses)
(photosensitive fluoroalkylimidic acid-generating agent for chemical amplified pos.-working photoresist material)
IT 601520-40-5P 601520-69-8P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(photosensitive fluoroalkylimidic acid-generating agent for chemical amplified pos.-working photoresist material)
IT 155040-27-0 158593-28-3 177034-75-2 200808-68-0 279244-15-4 279244-59-6 290808-54-7 301153-46-8 326925-68-2 417702-19-3 485391-28-4 601520-52-9 601520-53-0 601520-54-1 601520-55-2 601520-56-3 601520-57-4 601520-58-5 601520-59-6 **601520-60-9** **601520-61-0** 601520-62-1 **601520-64-3** 601520-65-4 601520-66-5
RL: TEM (Technical or engineered material use); USES (Uses)
(photosensitive fluoroalkylimidic acid-generating agent for chemical amplified pos.-working **photoresist** material)
IT 102-71-6, Triethanolamine, uses 102-82-9, Tributylamine 3002-18-4 211919-60-7, Trismethoxy(methoxyethyl)amine 218770-96-8, Trismethoxy(ethoxymethoxy)ethylamine 449165-34-8
RL: MOA (Modifier or additive use); USES (Uses)
(photosensitive fluoroalkylimidic acid-generating agent for chemical amplified pos.-working photoresist material containing)
IT **601520-60-9** **601520-61-0** **601520-64-3**
RL: TEM (Technical or engineered material use); USES (Uses)
(photosensitive fluoroalkylimidic acid-generating agent for chemical amplified pos.-working **photoresist** material)

RN 601520-60-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, (1R,2R,4S)-2-ethylbicyclo[2.2.1]hept-2-yl ester, rel-, polymer with ethenylheptamethylcyclotetrasiloxane and 2,5-furandione (9CI) (CA INDEX NAME)

CM 1

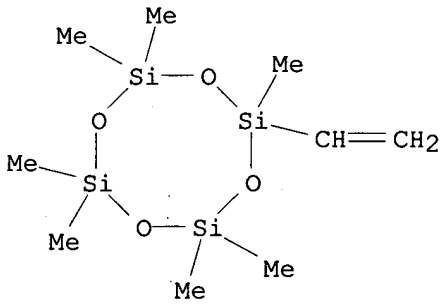
CRN 271598-68-6
CMF C13 H20 O2

Relative stereochemistry.



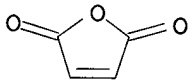
CM 2

CRN 3763-39-1
CMF C9 H24 O4 Si4



CM 3

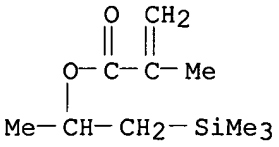
CRN 108-31-6
CMF C4 H2 O3



RN 601520-61-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methyl-2-(trimethylsilyl)ethyl ester, polymer with ethenylheptamethylcyclotetrasiloxane and 2,5-furandione (9CI) (CA INDEX NAME)

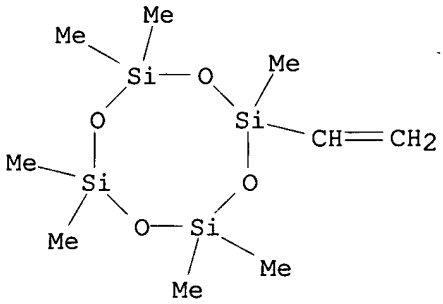
CM 1

CRN 409320-43-0
CMF C10 H20 O2 Si



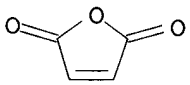
CM 2

CRN 3763-39-1
CMF C9 H24 O4 Si4



CM 3

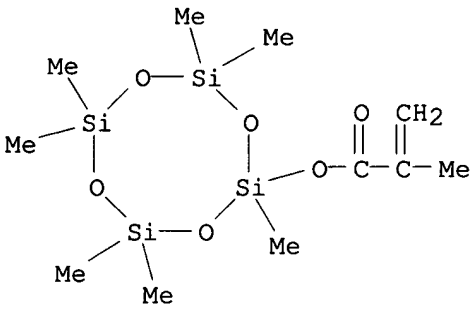
CRN 108-31-6
CMF C4 H2 O3



RN 601520-64-3 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2,4,4,6,6,8,8-heptamethylcyclotetrasiloxan-2-yl ester, polymer with 2,5-furandione and 1-methyl-2-(trimethylsilyl)ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

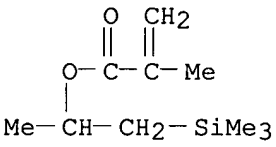
CM 1

CRN 601520-63-2
CMF C11 H26 O6 Si4



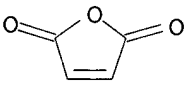
CM 2

CRN 409320-43-0
CMF C10 H20 O2 Si



CM 3

CRN 108-31-6
CMF C4 H2 O3



L97 ANSWER 19 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:570085 HCAPLUS
DN 140:261279
TI Polyhedral oligomeric silsesquioxane (POSS) based resist materials for 157-nm lithography
AU Tegou, Evangelia; Bellas, Vassilios; Gogolides, Evangelos; Argitis, Panagiotis; Dean, Kim R.; Eon, David; Cartry, Gilles; Cardinaud, Christophe
CS Institute of Microelectronics, Aghia Paraskevi, 15310, Greece
SO Proceedings of SPIE-The International Society for Optical Engineering (2003), 5039(Pt. 1, Advances in Resist Technology and Processing XX), 453-461
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
AB Novel polymers containing polyhedral oligomeric silsesquioxane (POSS) pendant groups have been synthesized and evaluated as components of 157 nm resist

formulations. Random copolymers of polymerizable, ethyl-POSS containing monomers with various acrylates, including tert-Bu methacrylates, were first used in pos., aqueous base-developable resist formulations and evaluated at thicknesses in the range of 100 nm. Copolymers with optimized monomer composition do not present strong self-organization phenomena and provide materials with good film forming properties, and high sensitivity at 157 nm (1-10 mJ/cm2 under open field exposure). Process studies reveal strong influence of thermal processing conditions and development concns. on swelling of unexposed and underexposed resist areas. Similar results are obtained from Dissoln. Rate Monitoring (DRM) studies. A typical process selected for selling reduction includes pre-exposure and post-exposure bakes at 160° C (2 min) and selection of low strength developers. High resolution patterning under these conditions has shown potential for sub 130 nm lithog. upon further material optimization. On the other hand, pattern transfer studies have shown that 100 nm thick films of POSS containing materials, having the same silicon content as the ones evaluated for high resolution 157 nm lithog., provide the necessary oxygen plasma resistance for use as bilayer resists. XPS was used for surface characterization before plasma etching. Both XPS and angular XPS characterization have revealed that the POSS moieties tend to segregate preferentially on the free surface of the films.

CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)

ST polyhedral oligomeric silsesquioxane group contg polymer photoresist vacuum UV

IT X-ray photoelectron spectra
(evaluation of polymers containing polyhedral oligomeric silsesquioxane pendant groups as components of 157 nm chemical amplified photoresist formulations)

IT Silsesquioxanes
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(fluorine-containing, methacrylate-; evaluation of polymers containing polyhedral oligomeric silsesquioxane pendant groups as components of 157 nm chemical amplified photoresist formulations)

IT Silsesquioxanes
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(methacrylate-; evaluation of polymers containing polyhedral oligomeric silsesquioxane pendant groups as components of 157 nm chemical amplified photoresist formulations)

IT Etching
(plasma; evaluation of polymers containing polyhedral oligomeric silsesquioxane pendant groups as components of 157 nm chemical amplified photoresist formulations)

IT Fluoropolymers, properties
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(silsesquioxane-, methacrylate-; evaluation of polymers containing polyhedral oligomeric silsesquioxane pendant groups as components of 157 nm chemical amplified photoresist formulations)

IT Photoresists
(vacuum-UV, chemical amplified; evaluation of polymers containing polyhedral oligomeric silsesquioxane pendant groups as components of 157 nm chemical amplified photoresist formulations)

IT **632330-71-3 632330-72-4**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(evaluation of polymers containing polyhedral oligomeric silsesquioxane

pendant groups as components of 157 nm chemical amplified **photoresist** formulations)

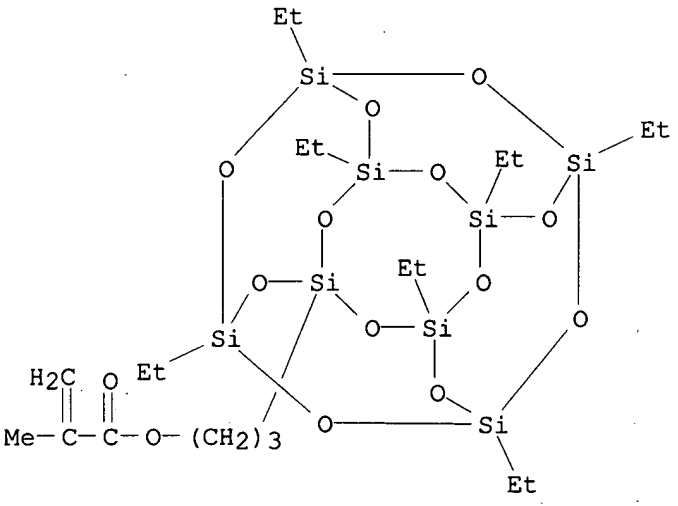
IT 7782-44-7, Oxygen, uses
RL: NUU (Other use, unclassified); USES (Uses)
(plasma; evaluation of polymers containing polyhedral oligomeric silsesquioxane pendant groups as components of 157 nm chemical amplified photoresist formulations)

IT **632330-71-3 632330-72-4**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(evaluation of polymers containing polyhedral oligomeric silsesquioxane pendant groups as components of 157 nm chemical amplified **photoresist** formulations)

RN 632330-71-3 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethylethyl 2-methyl-2-propenoate and 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

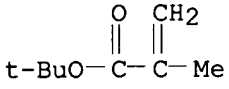
CM 1

CRN 509106-74-5
CMF C21 H46 O14 Si8



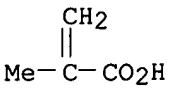
CM 2

CRN 585-07-9
CMF C8 H14 O2



CM 3

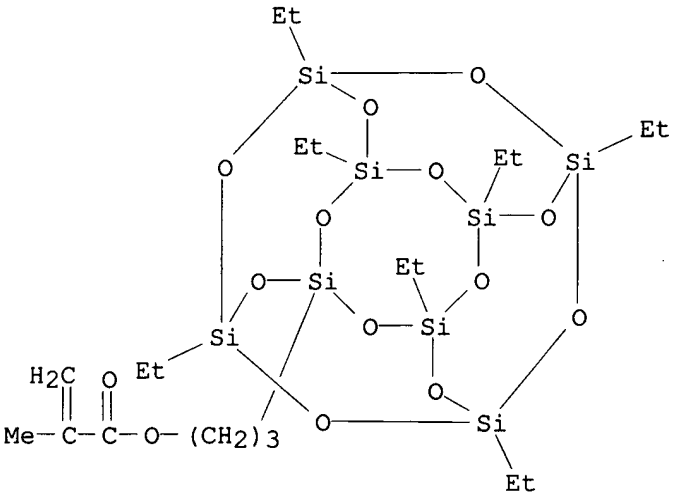
CRN 79-41-4
CMF C4 H6 O2



RN 632330-72-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, polymer with dihydro-3-methylene-2,5-furandione, 1,1-dimethylethyl 2-methyl-2-propenoate and 3-(heptaethylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

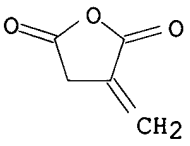
CM 1

CRN 509106-74-5
CMF C21 H46 O14 Si8



CM 2

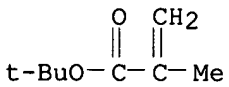
CRN 2170-03-8
CMF C5 H4 O3



CM 3

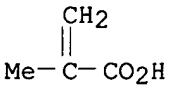
CRN 585-07-9

CMF C8 H14 O2



CM 4

CRN 79-41-4
CMF C4 H6 O2



RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L97 ANSWER 20 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:304847 HCAPLUS
DN 139:188229
TI High sensitivity nanocomposite resists for EUV lithography
AU Azam Ali, M.; Gonsalves, K. E.; Golovkina, V.; Cerrina, F.
CS Department of Chemistry and Cameron Applied Research Center, Polymer Chemistry NanoTechnology Lab., The University of North Carolina, Charlotte, NC, 28223, USA
SO Microelectronic Engineering (2003), 65(4), 454-462
CODEN: MIENEF; ISSN: 0167-9317
PB Elsevier Science B.V.
DT Journal
LA English
AB A novel nanocomposite photoresist was synthesized for extreme UV lithog. (EUVL) by a radical polymerization process. This resist system exhibited enhanced sensitivity and contrast for EUVL. The potential for EUVL nanofeatures is also examined The high sensitivity and the desirable contrast in this resist, indicates that it is a promising candidate not only for sub-100 nm resolution EUVL, but also for X-ray lithog. and low voltage electron beam lithog.
CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
ST high sensitivity nanocomposite resist EUV lithog photoresist photoacid generator
IT Photolithography
(UV; high sensitivity nanocomposite resists for EUV lithog.)
IT Nanocomposites
Photoresists
(high sensitivity nanocomposite resists for EUV lithog.)
IT 75-59-2, Tetramethylammonium hydroxide
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(developer; high sensitivity nanocomposite resists for EUV lithog.)
IT **461699-74-1**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)

(high sensitivity nanocomposite **resists** for EUV lithog.)

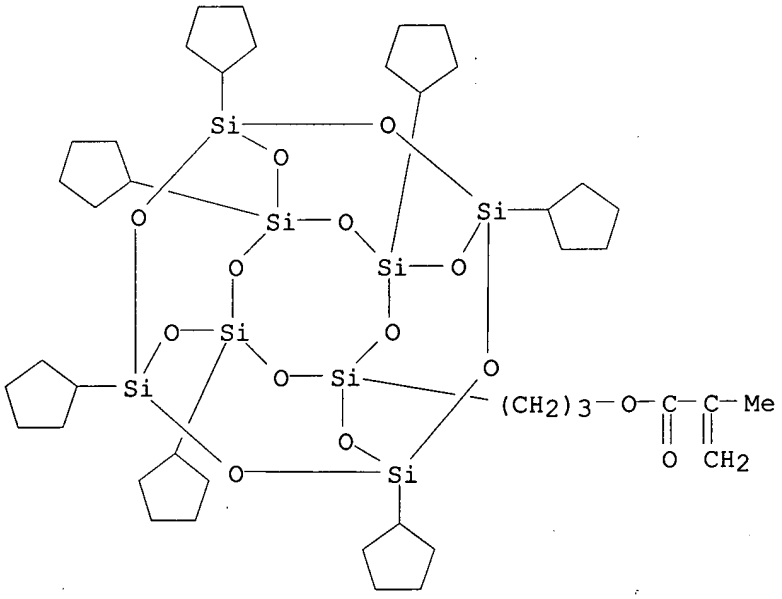
IT **461699-74-1**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(high sensitivity nanocomposite **resists** for EUV lithog.)

RN 461699-74-1 HCAPLUS

CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with 1,1-dimethylethyl 2-methyl-2-propenoate, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate, methyl 2-methyl-2-propenoate and 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

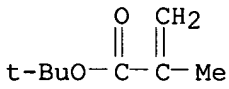
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



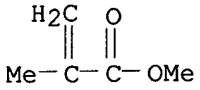
CM 2

CRN 585-07-9
CMF C8 H14 O2



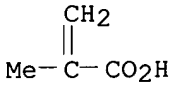
CM 3

CRN 80-62-6
CMF C5 H8 O2



CM 4

CRN 79-41-4
CMF C4 H6 O2

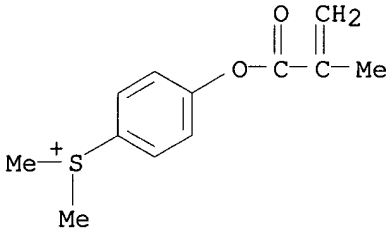


CM 5

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

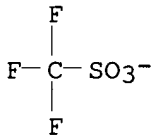
CM 6

CRN 141718-72-1
CMF C12 H15 O2 S



CM 7

CRN 37181-39-8
CMF C F3 O3 S



RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L97 ANSWER 21 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:901485 HCAPLUS

DN 137:391162
TI Hydrosilylation-curable transparent resin compositions, components of LCD and of LED therefrom, and fabrication thereof
IN Ouchi, Katsuya; Tsumura, Manabu; Sakamoto, Harumi; Fujita, Masayuki; Kuramoto, Masashi; Miki, Tomohide
PA Kanegafuchi Chemical Industry Co., Ltd., Japan; Nichia Chemical Industries Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 24 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002341101	A2	20021127	JP 2002-45381	20020221
PRAI	JP 2001-48551	A	20010223		

AB The compns., exhibiting excellent yellowing resistance, transparency, toughness, and wide variation of flexibility, comprise (A) organic compds. containing ≥2 SiH-reactive C:C bonds (e.g., 1,2-polybutadiene, vinylcyclohexene, cyclopentadiene, dicyclopentadiene, divinylbiphenyl, bisphenol A diallyl ether, triallyl isocyanurate, trivinylcyclohexane), (B) Si compds. having ≥2 SiH groups, (C) hydrosilylation catalysts, and (D) compds. having one C:C bond. Film substrates, liquid crystal cells, and packages of LCD or of LED formed from the compns. are also claimed. The compns. are especially useful for wavelength-converting phosphors (e.g., Ce-activated garnets)-dispersed multilayer packages of color-variable LED.

IC ICM G02B001-04
ICS C08K005-00; C08L047-00; C08L083-05; C08L101-02; G02F001-1333; G02F001-1335; H01L033-00
CC 74-13 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 38, 73
ST LED package allyl isocyanurate methylcyclotetrasiloxane polymer; butyl acrylate grafted LCD LED packaging polymer; variable LED phosphor dispersed resin package reliability
IT Electroluminescent devices
(displays; hydrosilylation-curable resin compns. forming optical device components with high transparency, yellowing resistance, and good moisture barrier property)
IT Luminescent screens
(electroluminescent; hydrosilylation-curable resin compns. forming optical device components with high transparency, yellowing resistance, and good moisture barrier property)
IT Transparent materials
(heat-resistant; hydrosilylation-curable resin compns. forming optical device components with high transparency, yellowing resistance, and good moisture barrier property)
IT Electronic packaging materials
Liquid crystal displays
(hydrosilylation-curable resin compns. forming optical device components with high transparency, yellowing resistance, and good moisture barrier property)
IT Electroluminescent devices
(nitride semiconductor-based; hydrosilylation-curable resin compns. forming optical device components with high transparency, yellowing resistance, and good moisture barrier property)
IT Polysiloxanes, preparation
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyisocyanurate-, acrylic, graft; hydrosilylation-curable resin compns. forming optical device components with high transparency, yellowing resistance, and good moisture barrier property)

IT Polyisocyanurates
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(siloxane-, acrylic, graft; hydrosilylation-curable resin compns. forming optical device components with high transparency, yellowing resistance, and good moisture barrier property)

IT Heat-resistant materials
(transparent; hydrosilylation-curable resin compns. forming optical device components with high transparency, yellowing resistance, and good moisture barrier property)

IT 202586-73-0, Aluminum gadolinium yttrium oxide (Al5Gd0.6Y2.4O12)
202586-74-1, Aluminum gadolinium yttrium oxide (Al5Gd1.2Y1.8O12)
RL: TEM (Technical or engineered material use); USES (Uses)
(Ce-activated; hydrosilylation-curable resin compns. forming optical device components with high transparency, yellowing resistance, and good moisture barrier property)

IT 7440-45-1, Cerium, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(activators; hydrosilylation-curable resin compns. forming optical device components with high transparency, yellowing resistance, and good moisture barrier property)

IT 25617-97-4, Gallium nitride 120994-23-2, Indium gallium nitride
RL: TEM (Technical or engineered material use); USES (Uses)
(emission layers of LED; hydrosilylation-curable resin compns. forming optical device components with high transparency, yellowing resistance, and good moisture barrier property)

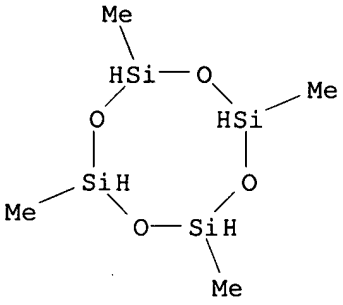
IT **476153-50-1P**, Butyl acrylate-1,3,5,7-tetramethylcyclotetrasiloxane-triallyl isocyanurate graft copolymer
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(hydrosilylation-curable resin compns. forming optical device components with high transparency, yellowing **resistance**, and good moisture barrier property)

IT **476153-50-1P**, Butyl acrylate-1,3,5,7-tetramethylcyclotetrasiloxane-triallyl isocyanurate graft copolymer
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(hydrosilylation-curable resin compns. forming optical device components with high transparency, yellowing **resistance**, and good moisture barrier property)

RN 476153-50-1 HCAPLUS
CN 2-Propenoic acid, butyl ester, polymer with 2,4,6,8-tetramethylcyclotetrasiloxane and 1,3,5-tri-2-propenyl-1,3,5-triazine-2,4,6(1H,3H,5H)-trione, graft (9CI) (CA INDEX NAME)

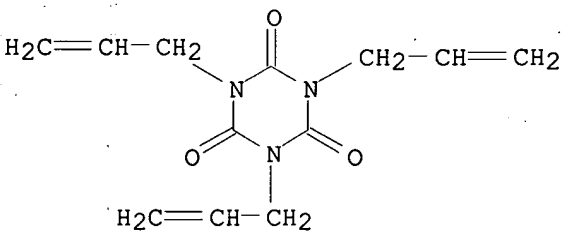
CM 1

CRN 2370-88-9
CMF C4 H16 O4 Si4



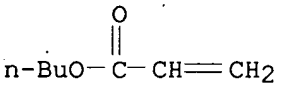
CM 2

CRN 1025-15-6
CMF C12 H15 N3 O3



CM 3

CRN 141-32-2
CMF C7 H12 O2



L97 ANSWER 22 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:716627 HCAPLUS
DN 137:270509
TI High resolution resists comprising nanoparticles and inorganic moieties for next generation lithographies
IN Gonsalves, Kenneth E.
PA University of North Carolina at Charlotte, USA; University of Connecticut
SO PCT Int. Appl., 62 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

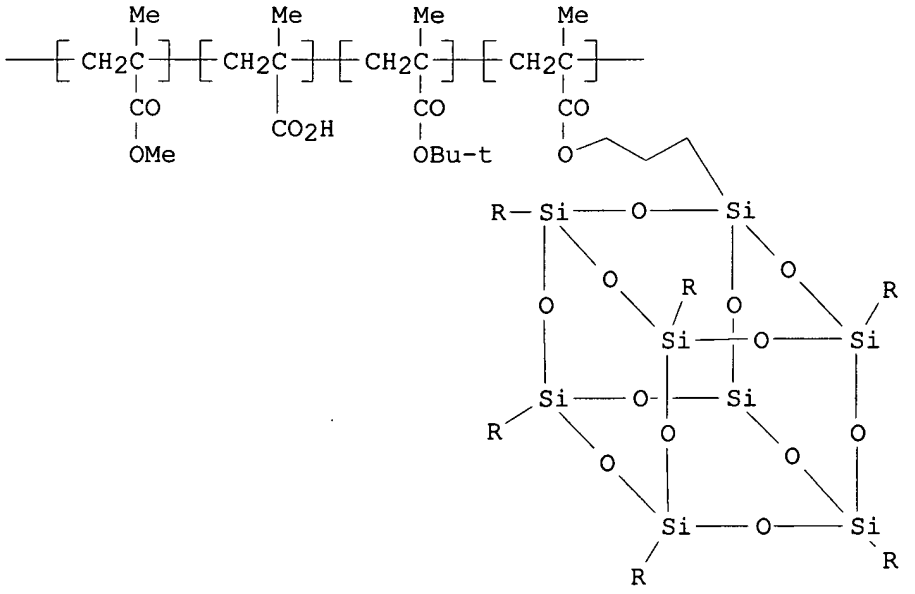
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002073308	A1	20020919	WO 2002-US7338	20020311

applicant

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

	US 2002182541	A1	20021205	US 2001-992560	20011105
	EP 1377876	A1	20040107	EP 2002-723388	20020311
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2004530921	T2	20041007	JP 2002-572502	20020311
PRAI	US 2001-274719P	P	20010312		
	WO 2002-US7338	W	20020311		

GI



I

AB The present invention provides new high resolution resists applicable to next generation lithogs., methods of making these novel resists, and methods of using these new resists in lithog. processes to effect state-of-the-art lithogs. New nanocomposite resists comprising polymers of the general formula I (R = alkyl, cycloalkyl, silyl, aryl, aralkyl, alkenyl) and nanoparticles in a polymer matrix are provided in the invention. New chemical amplified resists that incorporate inorg. moieties as part of the polymer and chemical amplified resists that incorporate photoacid generating groups within the polymeric chain are presented. Novel non-chemical amplified yet photosensitive resists, and new organic-inorg. hybrid resists are also provided. This invention and the embodiments described

constitute fundamentally new architectures for high resolution resists that achieve high sensitivity, contrast, resolution and high plasma etch resistance.

IC ICM G03C001-725
ICS G03F007-039; G03F007-075; G03F007-26

CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 38, 76

ST chem amplified resist nanoparticle silsesquioxane photoacid generator copolymer polymer; lithog electron ion beam x ray chem amplified resist; photolithog UV chem amplified resist nanoparticle silsesquioxane

IT Photolithography
(UV; chemical amplified resists comprising copolymers with sulfonium photoacid generator monomer for)

IT Resists
(chemical amplified resists comprising copolymers with sulfonium photoacid generator monomer)

IT Electron beam lithography
Ion beam lithography
X-ray lithography
(chemical amplified resists comprising copolymers with sulfonium photoacid generator monomer for)

IT Integrated circuits
(chemical amplified resists comprising copolymers with sulfonium photoacid generator monomer for fabrication of)

IT Polyoxymethylenes, preparation
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified resists comprising polyacetals)

IT Silsesquioxanes
RL: TEM (Technical or engineered material use); USES (Uses)
(chemical amplified resists comprising polyhydral oligosilsesquioxanes, nanoparticles and inorg. moieties)

IT 43127-35-1, ZEP 520
RL: TEM (Technical or engineered material use); USES (Uses)
(ZEP 520; chemical amplified resists comprising polyhydral oligosilsesquioxanes, nanoparticles and inorg. moieties)

IT **352455-55-1P 362675-17-0P 461699-74-1P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified **resists** comprising copolymers with sulfonium photoacid generator monomer)

IT 461699-77-4P 461699-80-9P
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified resists comprising polyacetals)

IT **359408-40-5P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified **resists** comprising polyhydral oligosilsesquioxanes, nanoparticles and inorg. moieties)

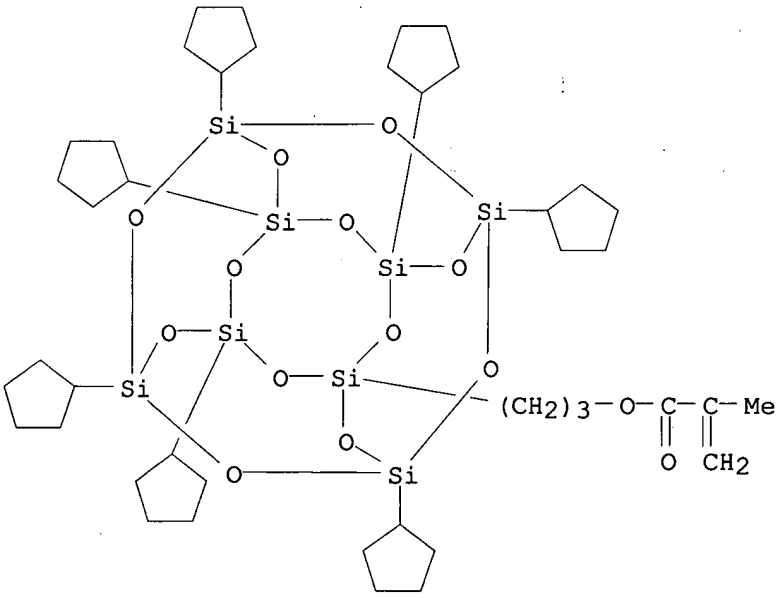
IT 136849-03-1
RL: TEM (Technical or engineered material use); USES (Uses)
(chemical amplified resists comprising polyhydral oligosilsesquioxanes, nanoparticles and inorg. moieties)

IT 338731-99-0P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified resists comprising sulfonium photoacid generator

polymer)
IT 2170-03-8, Itaconic anhydride
RL: TEM (Technical or engineered material use); USES (Uses)
(dissoln. promoter; chemical amplified resists comprising copolymers with sulfonium photoacid generator monomer)
IT 352455-54-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in preparation of copolymers containing sulfonium photoacid generator monomer)
IT 108-95-2, Phenol, reactions 920-46-7, Methacryloyl chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of sulfonium photoacid generator monomer)
IT 1005-35-2P 301152-82-9P 364325-13-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in preparation of sulfonium photoacid generator monomer)
IT **352455-55-1P 362675-17-0P 461699-74-1P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified **resists** comprising copolymers with sulfonium photoacid generator monomer)
RN 352455-55-1 HCAPLUS
CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with 1,1-dimethylethyl 2-methyl-2-propenoate and 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

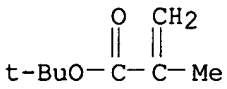
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



CM 2

CRN 585-07-9
CMF C8 H14 O2

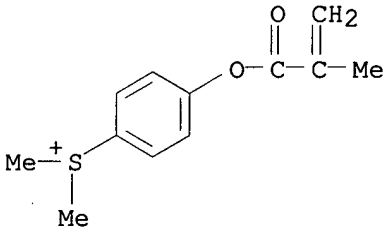


CM 3

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

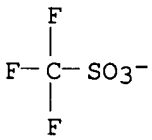
CM 4

CRN 141718-72-1
CMF C12 H15 O2 S



CM 5

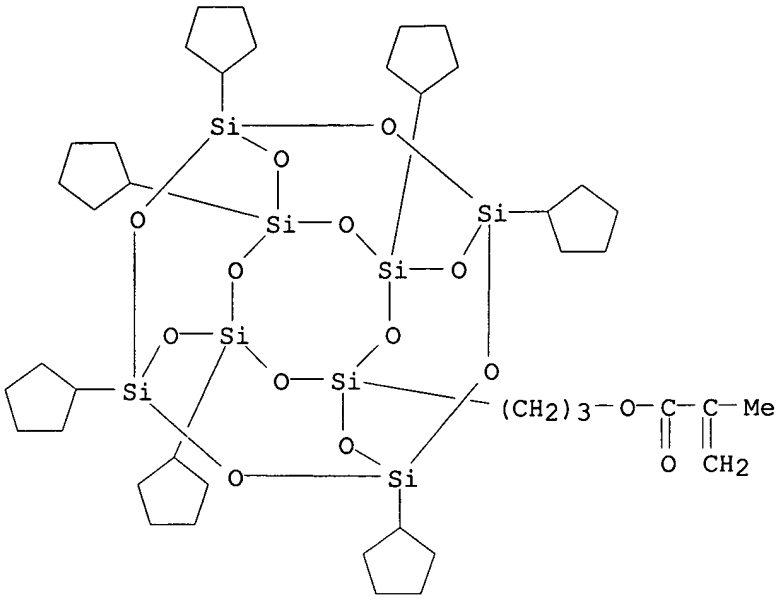
CRN 37181-39-8
CMF C F3 O3 S



RN 362675-17-0 HCAPLUS
CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with dihydro-3-methylene-2,5-furandione, 1,1-dimethylethyl 2-methyl-2-propenoate, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate and methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

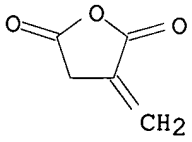
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



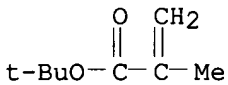
CM 2

CRN 2170-03-8
CMF C5 H4 O3



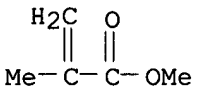
CM 3

CRN 585-07-9
CMF C8 H14 O2



CM 4

CRN 80-62-6
CMF C5 H8 O2

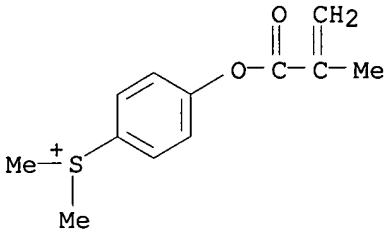


CM 5

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

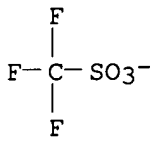
CM 6

CRN 141718-72-1
CMF C12 H15 O2 S



CM 7

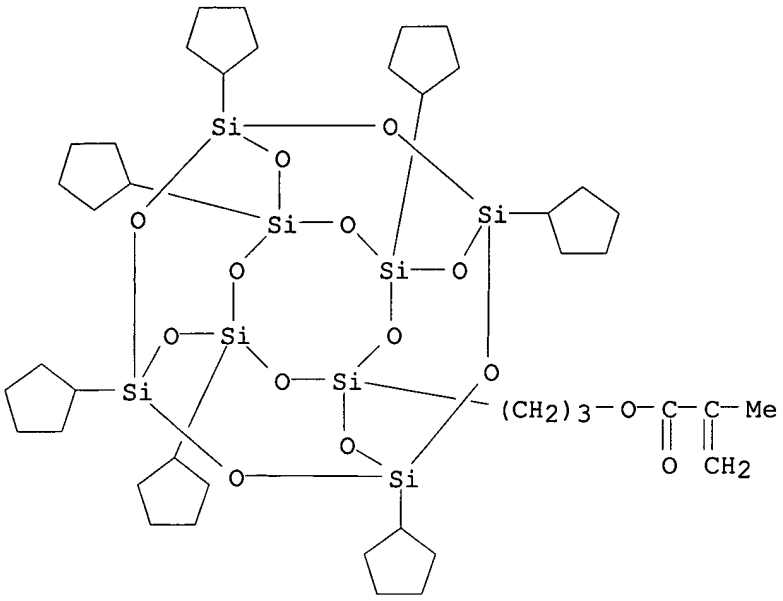
CRN 37181-39-8
CMF C F3 O3 S



RN 461699-74-1 HCAPLUS
CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with 1,1-dimethylethyl 2-methyl-2-propenoate, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate, methyl 2-methyl-2-propenoate and 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

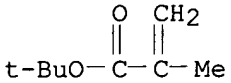
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



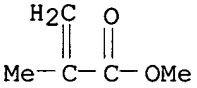
CM 2

CRN 585-07-9
CMF C8 H14 O2



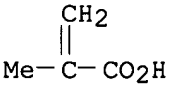
CM 3

CRN 80-62-6
CMF C5 H8 O2



CM 4

CRN 79-41-4
CMF C4 H6 O2

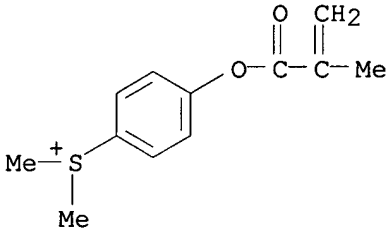


CM 5

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

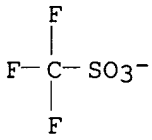
CM 6

CRN 141718-72-1
CMF C12 H15 O2 S



CM 7

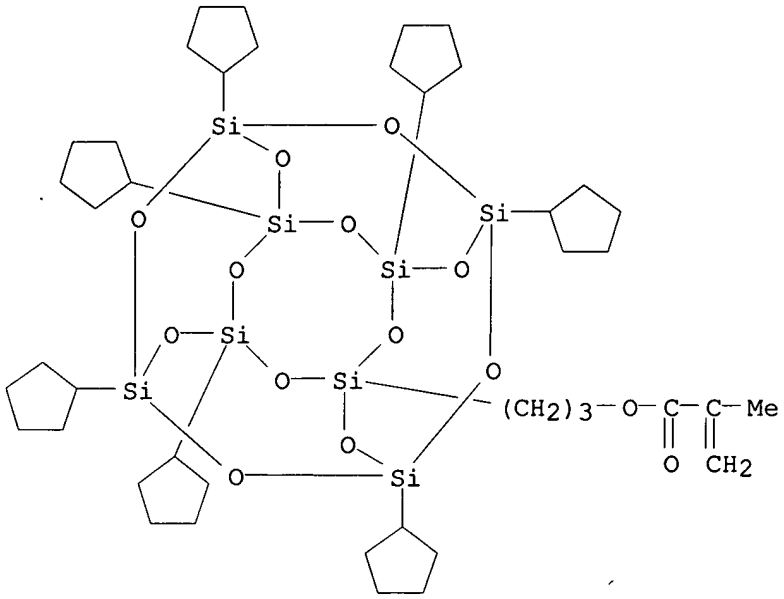
CRN 37181-39-8
CMF C F3 O3 S



IT **359408-40-5P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified **resists** comprising polyhydral oligosilsesquioxanes, nanoparticles and inorg. moieties)
RN 359408-40-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethylethyl 2-methyl-2-propenoate, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate and methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

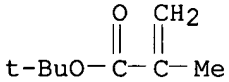
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



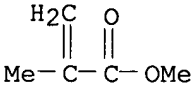
CM 2

CRN 585-07-9
CMF C8 H14 O2



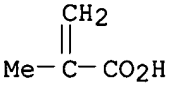
CM 3

CRN 80-62-6
CMF C5 H8 O2



CM 4

CRN 79-41-4
CMF C4 H6 O2

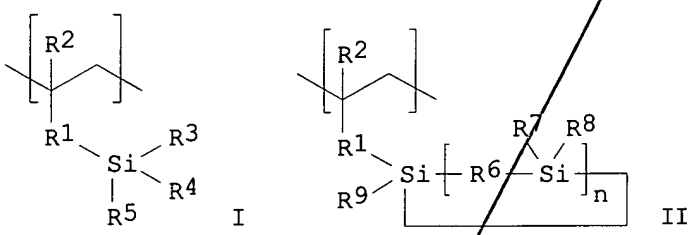


RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L97 ANSWER 23 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:688176 HCAPLUS
DN 137:224121
TI Copolymers containing allylsilane derivatives, their chemically amplified resist materials, and pattern formation thereof
IN Hatakeyama, Jun; Takeda, Takanobu; Ishihara, Toshinobu; Kubota, Toru; Tonomura, Yoichi
PA Shin-Etsu Chemical Industry Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 38 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

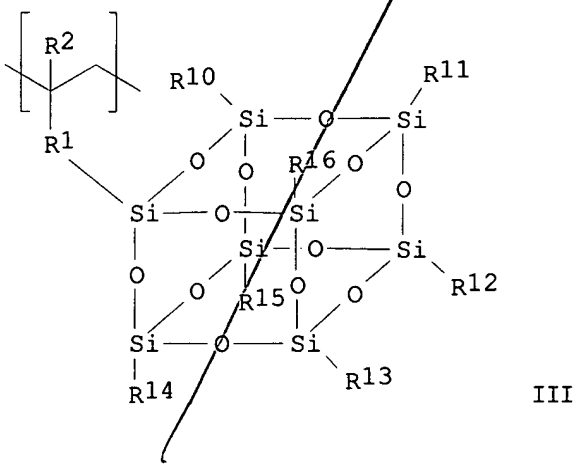
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2002256033	A2	20020911	JP 2001-56536	20010301
PRAI JP 2001-56536		20010301		

GI



I

II



III

AB The copolymers, useful for bilayer resists, contain ≥1 repeating units selected from I, II, and III (R1 = C1-10 linear, branched, or cyclic alkylene; R2 = H, C1-10 linear, branched, or cyclic alkyl; R3-R5 = C1-20 alkyl, haloalkyl, C6-20 aryl, Si-containing group which bond Si in the formula as siloxane bond or silalkylene bond; ≥1 of R3-R5 is Si-containing group; R6 = O, C1-10 linear, branched, or cyclic alkylene, arylene; R7-16 = C1-10 linear, branched, or cyclic alkyl, fluorinated alkyl, aryl; n = 2-10 integer). Preferably, the copolymers further contain repeating units

based on maleic anhydride derivs and tetrafluoroethylene derivs. The copolymers may contain ≤90 mol% acid-unstable groups. The copolymers are useful for resist materials, especially chemical amplified resist materials which also contain acid generators, organic solvents, dissoln. inhibitors, and bases. The resist materials are applied on substrates, heated, exposed to high-energy ray with wavelength ≤300 nm or electron beam via photomasks, heated if necessary, and developed to form patterns which may be further etched by using O plasma or Cl- or Br-containing halogen gases.

IC ICM C08F230-08
ICS C08F212-14; C08F214-00; C08F216-14; C08F220-10; C08F222-06; C08F222-40; C08F232-00; C08F234-00; C08K005-00; C08K005-16; C08L043-04; G03F007-039; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 38

ST allylsilane deriv copolymer chem amplified resist pos; bilayer resist pos allylsilane deriv copolymer; pos photoresist allylsilane deriv copolymer; electron beam resist pos allylsilane deriv copolymer; deep UV resist pos allylsilane deriv copolymer

IT Positive photoresists
(UV; chemical amplified resists containing copolymers of allylsilane derivs. for bilayer resist patterns)

IT Electron beam resists
(pos.-working; chemical amplified resists containing copolymers of allylsilane derivs. for bilayer resist patterns)

IT 455303-22-7P 455303-24-9P 455303-26-1P 455303-28-3P
455303-30-7P 455303-32-9P 455303-34-1P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified **resists** containing copolymers of allylsilane derivs. for bilayer **resist** patterns)

IT 102-82-9, Tributylamine 3002-18-4 211919-60-7 409321-23-9
RL: MOA (Modifier or additive use); USES (Uses)
(control of acid diffusion velocity with; chemical amplified resists containing copolymers of allylsilane derivs. for bilayer resist patterns)

IT 409321-21-7
RL: MOA (Modifier or additive use); USES (Uses)
(dissoln. inhibitor; chemical amplified resists containing copolymers of allylsilane derivs. for bilayer resist patterns)

IT 66003-76-7 66003-78-9
RL: CAT (Catalyst use); USES (Uses)
(photoacid generator; chemical amplified resists containing copolymers of allylsilane derivs. for bilayer resist patterns)

IT **455303-30-7P 455303-32-9P 455303-34-1P**
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chemical amplified **resists** containing copolymers of allylsilane derivs. for bilayer **resist** patterns)

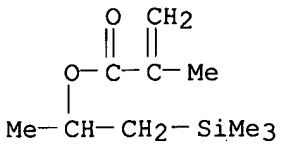
RN 455303-30-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-2-(trimethylsilyl)ethyl ester, polymer with 2,5-furandione and heptamethyl-2-propenylcyclotetrasiloxane (9CI) (CA INDEX NAME)

CM 1

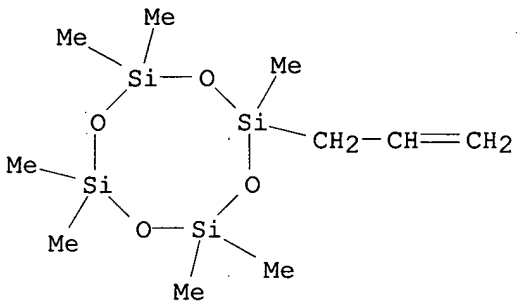
CRN 409320-43-0

CMF C10 H20 O2 Si



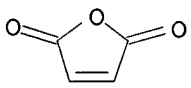
CM 2

CRN 1087-58-7
CMF C10 H26 O4 Si4



CM 3

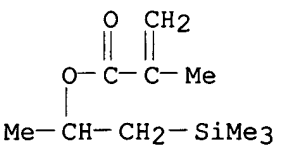
CRN 108-31-6
CMF C4 H2 O3



RN 455303-32-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methyl-2-(trimethylsilyl)ethyl ester, polymer with 3,4-difluoro-2,5-furandione and heptamethyl-2-propenylcyclotetrasiloxane (9CI) (CA INDEX NAME)

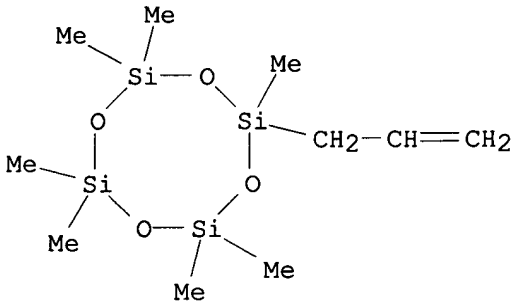
CM 1

CRN 409320-43-0
CMF C10 H20 O2 Si



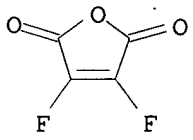
CM 2

CRN 1087-58-7
CMF C10 H26 O4 Si4



CM 3

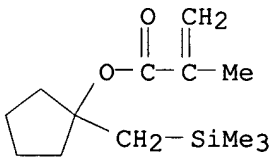
CRN 669-78-3
CMF C4 F2 O3



RN 455303-34-1 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-[(trimethylsilyl)methyl]cyclopentyl ester, polymer with 2,5-furandione and heptamethyl-2-propenylcyclotetrasiloxane (9CI) (CA INDEX NAME)

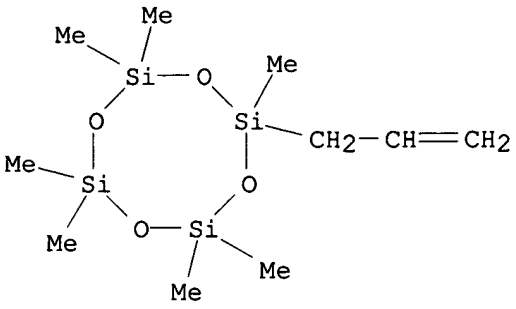
CM 1

CRN 409320-47-4
CMF C13 H24 O2 Si



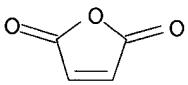
CM 2

CRN 1087-58-7
CMF C10 H26 O4 Si4



CM 3

CRN 108-31-6
CMF C4 H2 O3



L97 ANSWER 24 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:270669 HCAPLUS
DN 136:316921
TI Polymeric material for positive resist material and pattern formation method
IN Hasegawa, Koji; Kinsei, Takeshi; Watanabe, Takeshi; Nakajima, Michio; Tachibana, Seiichiro; Nishi, Tsunehiro; Hatakeyama, Jun
PA Shin-Etsu Chemical Industry Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 29 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

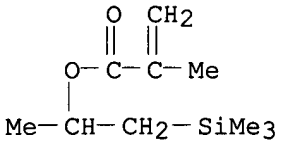
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002105130	A2	20020410	JP 2000-293858	20000927
	TW 570937	B	20040111	TW 2001-90123799	20010926
	US 2002061465	A1	20020523	US 2001-963465	20010927
	US 6780563	B2	20040824		
PRAI	JP 2000-293858	A	20000927		

AB This invention concerns about polymers having group CR1R2(CR3R4)mSiR5R6R7, which is typically introduced to a polymer by substitution the hydrogen atom of carboxylic acids, alcs., or phenols [R1-4 = H, C1-20 alkyl, hydrocarbon ring; R3, R4 = hydrocarbon ring; R5-7 = C1-20 (fluorinated) alkyl, C6-20 aryl; m = 1, 2]. A chemical amplification-type pos. resist material comprises at least the above polymers, an acid-generating agent, and an organic solvent. A process for forming a resist pattern on an organic material-coated substrate using the above resist material is also claimed.
IC ICM C08F030-08
ICS C08F032-00; C08K005-00; C08L101-10; G03F007-039; G03F007-40; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
ST polymer chem amplification pos resist material
IT Positive photoresists
(polymeric material for pos. resist material)
IT 409320-60-1P 409320-63-4P 409320-65-6P 409320-68-9P 409320-70-3P
409320-73-6P 409320-76-9P 409320-77-0P 409320-80-5P 409320-82-7P
409320-83-8P 409320-85-0P 409320-92-9P 409320-94-1P 409320-97-4P
409321-00-2P 409321-03-5P 409321-05-7P 409321-09-1P 409321-12-6P
409321-15-9P 409321-17-1P **409321-19-3P**
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polymeric material for pos. **resist** material)
IT 102-71-6, Triethanolamine, uses 102-82-9, Tributylamine 66003-76-7, Diphenyliodonium trifluoromethanesulfonate 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate 211919-60-7 409321-21-7 409321-23-9
RL: MOA (Modifier or additive use); USES (Uses)
(pos. resist material)
IT 4426-65-7P 55287-96-2P 121386-65-0P 158723-00-3P 409320-43-0P
409320-45-2P 409320-47-4P 409320-49-6P 409320-51-0P 409320-56-5P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(preparation of polymeric material for pos. resist material)
IT 75-07-0, Acetaldehyde, reactions 108-94-1, Cyclohexanone, reactions 110-52-1, 1,4-Dibromobutane 120-92-3, Cyclopentanone 920-46-7, Methacryloyl chloride 2344-80-1, Chloromethyltrimethylsilane 17728-88-0, Ethyl 3-trimethylsilylpropionate
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of polymeric material for pos. resist material)
IT **409321-19-3P**
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polymeric material for pos. **resist** material)
RN 409321-19-3 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(2,4,4,6,6,8,8-heptamethylcyclotetrasiloxan-2-yl)propyl ester, polymer with 1-methyl-2-(trimethylsilyl)ethyl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

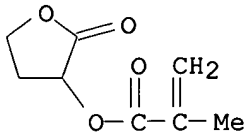
CM 1

CRN 409320-43-0
CMF C10 H20 O2 Si



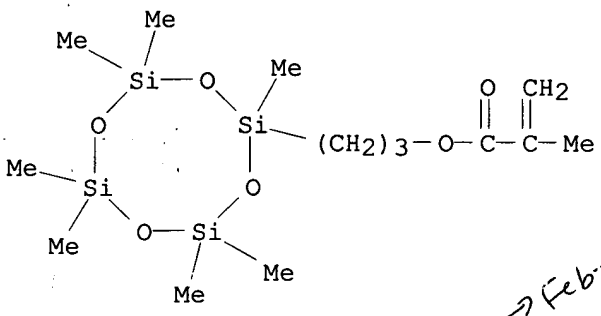
CM 2

CRN 195000-66-9
CMF C8 H10 O4



CM 3

CRN 110867-24-8
CMF C14 H32 O6 Si4



L97 ANSWER 25 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:803920 HCAPLUS
DN 136:110029
TI Novel CA resists with photoacid generator in polymer chain
AU Wu, Hengpeng; Gonsalves, Kenneth E.
CS Polymer Program at the Institute of Materials Science & Department of Chemistry, University of Connecticut, Storrs, CT, 06269, USA
SO Proceedings of SPIE-The International Society for Optical Engineering (2001), 4345(Pt. 1, Advances in Resist Technology and Processing XVIII), 521-527
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
AB Novel chemical amplified (CA) resists with photoacid generating units in the polymer chains were synthesized and their lithog. properties evaluated under both 248 nm and 20 keV electron beam exposures. The pos.-tone CA resists were found to exhibit excellent film formation behavior and extremely high sensitivity.
CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
ST chem amplified photoresist methacrylate polymer sulfonium photoacid generator pendant; electron beam resist methacrylate polymer sulfonium acid generator pendant
IT Positive photoresists
(chemical amplified; preparation and lithog. characterization of chemical amplified photoresists based on methacrylate polymer containing sulfonium photoacid generating pendant units)
IT Electron beam resists
(chemical amplified; preparation and lithog. characterization of chemical

Feb-March 1/2001

use Materials Research Society Symp. Proc. article instead (better date).

amplified resists based on methacrylate polymer containing sulfonium acid generating pendant units)

IT 108-95-2, Phenol, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(condensation with dimethylsulfoxide in presence of HCl in synthesis of methacrylate polymer containing sulfonium photoacid generating pendant units)

IT 75-59-2, Tetramethylammonium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)
(developer; preparation and lithog. characterization of chemical amplified photoresists based on methacrylate polymer containing sulfonium photoacid generating pendant units)

IT 1005-35-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(metathesis reaction in synthesis of methacrylate polymer containing sulfonium photoacid generating pendant units)

IT 301152-82-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(neutralization with excessive NaOH in MeOH in synthesis of methacrylate polymer containing sulfonium photoacid generating pendant units)

IT 352455-54-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(polymerization with methacrylate monomers in synthesis of methacrylate polymer containing sulfonium photoacid generating pendant units)

IT **352455-55-1P 362675-17-0P** 388610-68-2P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation and lithog. characterization of chemical amplified **photoresists** based on methacrylate polymer containing sulfonium photoacid generating pendant units)

IT 364325-13-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(reaction with methacryoyl chloride in synthesis of methacrylate polymer containing sulfonium photoacid generating pendant units)

IT 37286-64-9, Polypropylene glycol methyl ether
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; preparation and lithog. characterization of chemical amplified photoresists based on methacrylate polymer containing sulfonium photoacid generating pendant units)

IT **352455-55-1P 362675-17-0P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation and lithog. characterization of chemical amplified **photoresists** based on methacrylate polymer containing sulfonium photoacid generating pendant units)

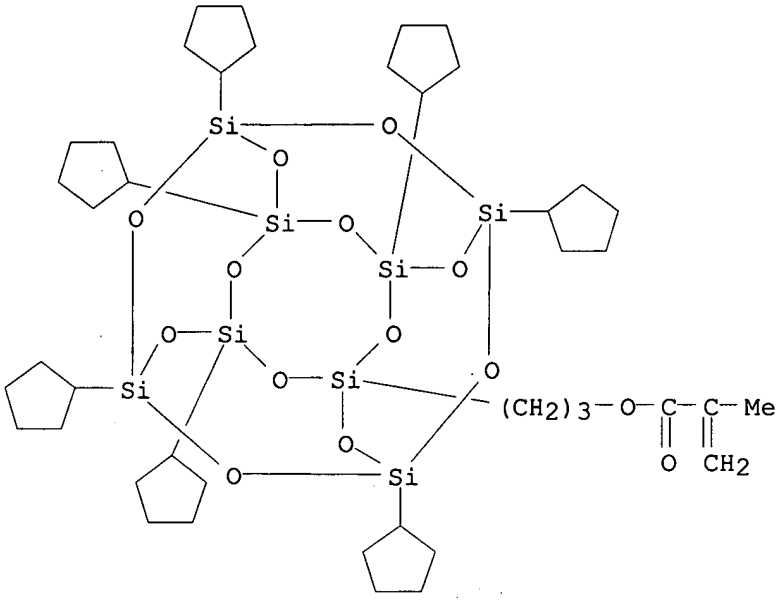
RN 352455-55-1 HCAPLUS

CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with 1,1-dimethylethyl 2-methyl-2-propenoate and 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

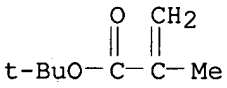
CRN 169391-91-7

CMF C42 H74 O14 Si8



CM 2

CRN 585-07-9
CMF C8 H14 O2

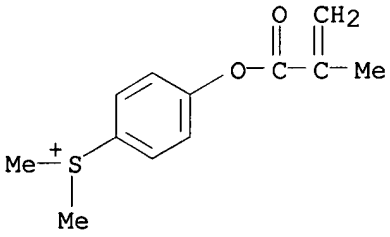


CM 3

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

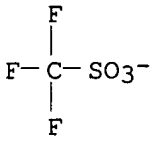
CM 4

CRN 141718-72-1
CMF C12 H15 O2 S



CM 5

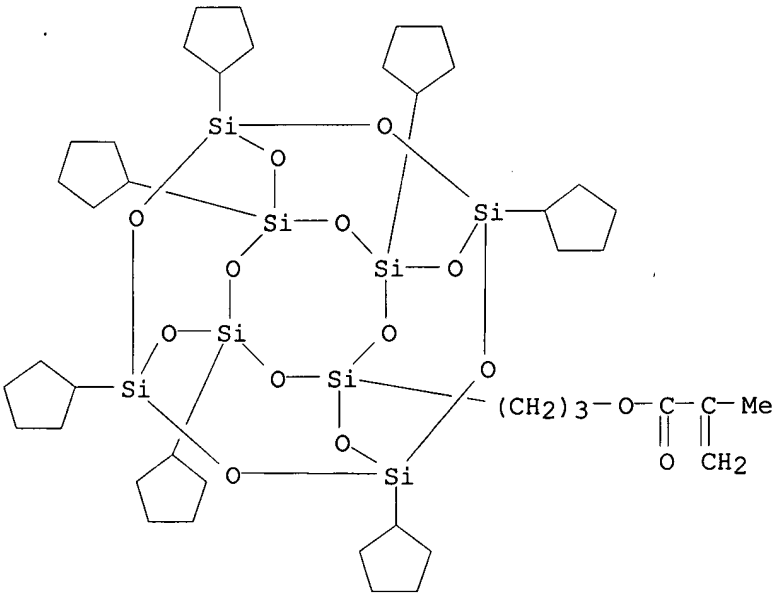
CRN 37181-39-8
CMF C F3 O3 S



RN 362675-17-0 HCAPLUS
CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with dihydro-3-methylene-2,5-furandione, 1,1-dimethylethyl 2-methyl-2-propenoate, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate and methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

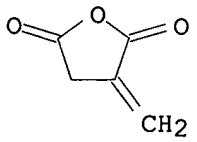
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



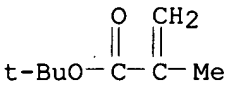
CM 2

CRN 2170-03-8
CMF C5 H4 O3



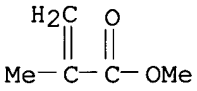
CM 3

CRN 585-07-9
CMF C8 H14 O2



CM 4

CRN 80-62-6
CMF C5 H8 O2

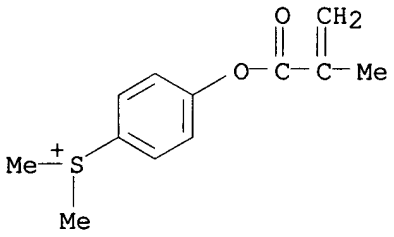


CM 5

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

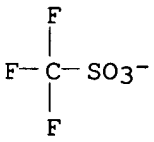
CM 6

CRN 141718-72-1
CMF C12 H15 O2 S



CM 7

CRN 37181-39-8
CMF C F3 O3 S



RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L97 ANSWER 26 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:546589 HCAPLUS
DN 135:280376
TI High resolution resists for next generation lithography: the nanocomposite approach
AU Gonsalves, Kenneth E.; Wu, Hengpeng; Hu, Yongqi; Merhari, Lhadi
CS Polymer Program at the Institute of Materials Science & Department of Chemistry, University of Connecticut, Storrs, CT, 06268, USA
SO Materials Research Society Symposium Proceedings (2001), 636(Nonlithographic and Lithographic Methods of Nanofabrication: From Ultralarge-Scale Integration to Photonics to Molecular Electronics), D6.5/1-D6.5/12
CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English
AB Except for ion-beam lithog., deep-UV (DUV), x-ray, and in particular electron-beam lithog. suffer significantly from proximity effects, leading to severe degradation of resolution in classical resists. The authors report a new class of resists based on organic/inorg. nanocomposites having a structure that reduces the proximity effects. Synthetic routes are described for a ZEP520/nano-SiO2 resist where 47 nm wide lines have been written with a 40 nm diameter, 20 keV electron beam at no sensitivity cost. Other resist systems based on polyhedral oligosilsesquioxane copolymd. with Me methacrylate, tert-Bu methacrylate, methacrylic acid and a proprietary photoacid generator are also presented. These nanocomposite resists suitable for DUV and electron beam lithog. show enhancement in both contrast and RIE resistance in oxygen. Tentative mechanisms responsible for proximity effect reduction are also discussed.
CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
ST silica nanoparticle modified ZEP520 lithog resist proximity effect redn; org inorg nanocomposite lithog resist proximity effect redn; silsesquioxane methacrylate polymer lithog resist proximity effect redn
IT Sputtering
(etching, reactive; lithog. resists with improved reactive ion etching resistance from methacrylate copolymers containing oligosilsesquioxane pendant)
IT Silsesquioxanes
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(lithog. resists with improved reactive ion etching resistance from methacrylate copolymers containing oligosilsesquioxane pendant)
IT Hybrid organic-inorganic materials
Proximity effect
(organic/inorg. nanocomposite lithog. resist with reduced proximity effect)
IT Electron beam resists

Resists
(silica nanoparticle-modified ZEP520 nanocomposite lithog. resist with reduced proximity effect)

IT Etching
(sputter, reactive; lithog. resists with improved reactive ion etching resistance from methacrylate copolymers containing oligosilsesquioxane pendant)

IT 43127-35-1, ZEP520
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(ZEP520; silica nanoparticle-modified ZEP520 nanocomposite lithog. resist with reduced proximity effect)

IT 352455-54-0D, polymers **359408-40-5 362675-17-0**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(lithog. **resists** with improved reactive ion etching **resistance** from methacrylate copolymers containing oligosilsesquioxane pendant)

IT 75-73-0, Carbon tetrafluoride 7782-44-7, Oxygen, uses
RL: NUU (Other use, unclassified); USES (Uses)
(plasma; lithog. resists with improved reactive ion etching resistance from methacrylate copolymers containing oligosilsesquioxane pendant)

IT 7631-86-9, Silica, properties
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(silica nanoparticle-modified ZEP520 nanocomposite lithog. resist with reduced proximity effect)

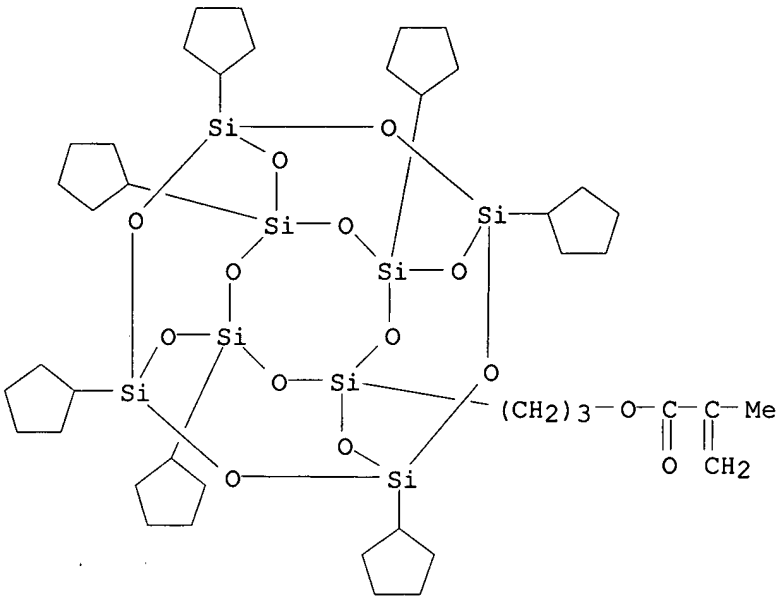
IT **359408-40-5 362675-17-0**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(lithog. **resists** with improved reactive ion etching **resistance** from methacrylate copolymers containing oligosilsesquioxane pendant)

RN 359408-40-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethylethyl 2-methyl-2-propenoate, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate and methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

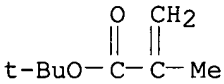
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



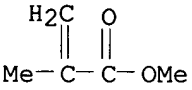
CM 2

CRN 585-07-9
CMF C8 H14 O2



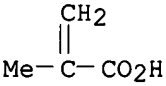
CM 3

CRN 80-62-6
CMF C5 H8 O2



CM 4

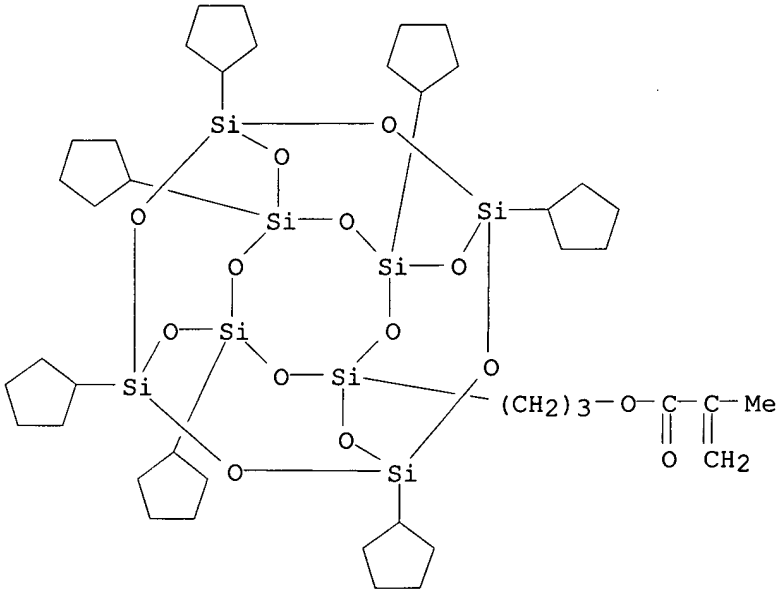
CRN 79-41-4
CMF C4 H6 O2



RN 362675-17-0 HCAPLUS
CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with dihydro-3-methylene-2,5-furandione, 1,1-dimethylethyl 2-methyl-2-propenoate, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate and methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

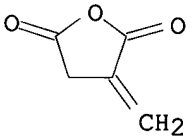
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



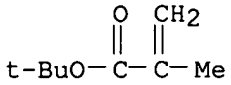
CM 2

CRN 2170-03-8
CMF C5 H4 O3



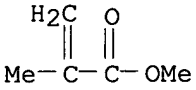
CM 3

CRN 585-07-9
CMF C8 H14 O2



CM 4

CRN 80-62-6
CMF C5 H8 O2

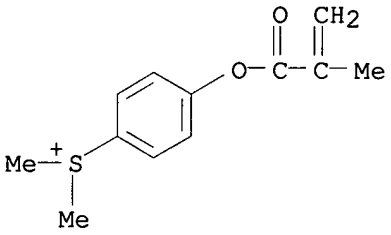


CM 5

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

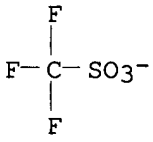
CM 6

CRN 141718-72-1
CMF C12 H15 O2 S



CM 7

CRN 37181-39-8
CMF C F3 O3 S



RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L97 ANSWER 27 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:422538 HCAPLUS
DN 135:233765

TI Incorporation of polyhedral oligosilsesquioxane in chemically amplified resists to improve their reactive ion etching resistance

AU Wu, Hengpeng; Hu, Yongqi; Gonsalves, Kenneth E.; Yacaman, Miguel Jose
CS Polymer Program at the Institute of Materials Science and Department of Chemistry, University of Connecticut, Storrs, CT, 06269, USA

SO Journal of Vacuum Science & Technology, B: Microelectronics and Nanometer Structures (2001), 19(3), 851-855
CODEN: JVTBD9; ISSN: 0734-211X
PB American Institute of Physics
DT Journal
LA English

May 2001

use Materials Research Society article instead.

AB A chemical amplified (CA) methacrylate resist containing polyhedral oligosilsesquioxane (POSS) has been synthesized by AIBN-initiated free radical polymerization While the polymer of low POSS concns. showed little improvement in reactive ion etching (RIE) resistance, incorporation of 20.5 weight% of the POSS monomer into methacrylate-based CA resists significantly improved their RIE resistance in the O2 plasma. High-resolution transmission electron microscopy revealed that the RIE resistance improvement was due to the formation of rectangular crystallite-constituting networks of the silica cages uniformly distributed within the polymer matrix.

CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 38
ST chem amplified polymer resist polyhedral silsesquioxane ion etching resistance; photoresist polymer polyhedral silsesquioxane improved ion etching resistance

IT Photoresists
(chemical amplified; incorporation of polyhedral oligosilsesquioxane in chemical amplified resists to improve their reactive ion etching resistance)

IT Sputtering
(etching, reactive; incorporation of polyhedral oligosilsesquioxane in chemical amplified resists to improve their reactive ion etching resistance)

IT Photolithography
(incorporation of polyhedral oligosilsesquioxane in chemical amplified resists to improve their reactive ion etching resistance)

IT Silsesquioxanes
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(incorporation of polyhedral oligosilsesquioxane in chemical amplified resists to improve their reactive ion etching resistance)

IT Etching
(sputter, reactive; incorporation of polyhedral oligosilsesquioxane in chemical amplified resists to improve their reactive ion etching resistance)

IT 75-59-2, Tetramethylammonium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)
(developer; incorporation of polyhedral oligosilsesquioxane in chemical amplified resists to improve their reactive ion etching resistance)

IT 78-67-1, Azobis(isobutyronitrile) 169391-91-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of chemical amplified (CA) methacrylate resist containing polyhedral oligosilsesquioxane)

IT **359408-40-5P**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(incorporation of polyhedral oligosilsesquioxane in chemical amplified

resists to improve their reactive ion etching **resistance**)

IT 72145-62-1, tert-Butyl methacrylate-methacrylic acid-methyl methacrylate copolymer
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(incorporation of polyhedral oligosilsesquioxane in chemical amplified resists to improve their reactive ion etching resistance)

IT 57840-38-7, Triphenyl sulfonium hexafluoroantimonate
RL: NUU (Other use, unclassified); USES (Uses)
(photoacid generator; incorporation of polyhedral oligosilsesquioxane in chemical amplified resists to improve their reactive ion etching resistance)

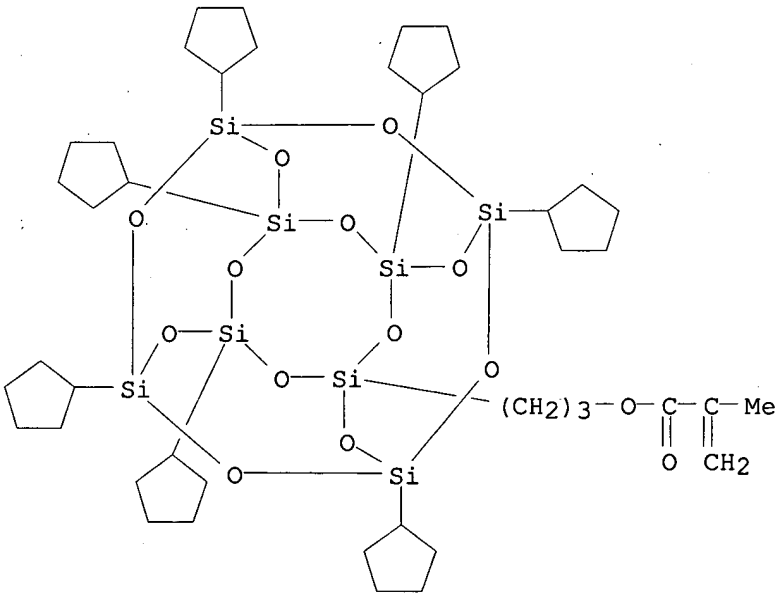
IT **359408-40-5P**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(incorporation of polyhedral oligosilsesquioxane in chemical amplified **resists** to improve their reactive ion etching **resistance**)

RN 359408-40-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethylethyl 2-methyl-2-propenoate, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate and methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

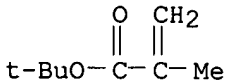
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



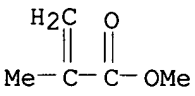
CM 2

CRN 585-07-9
CMF C8 H14 O2



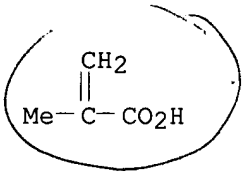
CM 3

CRN 80-62-6
CMF C5 H8 O2



CM 4

CRN 79-41-4
CMF C4 H6 O2



RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L97 ANSWER 28 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:374991 HCAPLUS
DN 135:160082
TI Novel positive-tone chemically amplified resists with photoacid generator in the polymer chains
AU Wu, Hengpeng; Gonsalves, Kenneth E.
CS Polymer Program at the Institute of Materials Science and Department of Chemistry, University of Connecticut, Storrs, CT, 06269, USA
SO Advanced Materials (Weinheim, Germany) (2001), 13(9), 670-672
CODEN: ADVMEW; ISSN: 0935-9648
PB Wiley-VCH Verlag GmbH
DT Journal
LA English
AB A sulfonium photoacid generating monomer was synthesized using a four-step synthesis scheme. This PAG monomer was successfully incorporated into methacrylate based chemical amplified resists by free radical copolymn. The resists were found to exhibit excellent film formation behavior due to absence of phase separation, and extremely high sensitivity owing to high PAG loading in the polymer chain. Lithog. properties of the resists were also evaluated under both 248 nm and 20 keV electron radiation. High sensitivity also affords these resists as potential candidates for low voltage EB lithog.
CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
ST sulfonium photoacid generating monomer pos chem amplified resist;

photoresist DUV electron beam lithog sulfonium photoacid generating monomer

IT Photolithography
Positive photoresists
(preparation and lithog. application of methacrylate based chemical amplified
resists comprising sulfonium photoacid generating monomer)

IT 75-59-2, Tetramethylammonium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)
(developer; preparation and lithog. application of methacrylate based chemical
amplified resists comprising sulfonium photoacid generating monomer)

IT **352455-55-1P**
RL: PNU (Preparation, unclassified); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation and lithog. application of methacrylate based chemical amplified
resists comprising sulfonium photoacid generating monomer)

IT 352455-54-0P
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(preparation and lithog. application of methacrylate based chemical amplified
resists comprising sulfonium photoacid generating monomer)

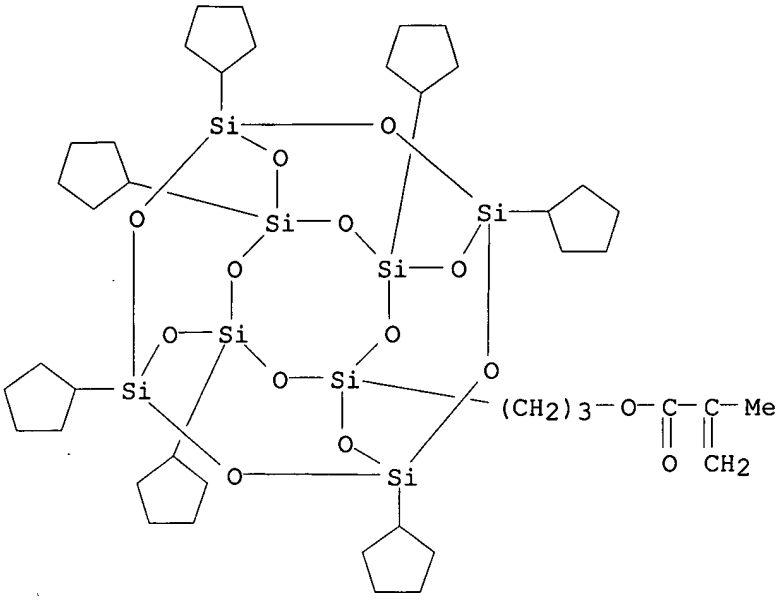
IT **352455-55-1P**
RL: PNU (Preparation, unclassified); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation and lithog. application of methacrylate based chemical amplified
resists comprising sulfonium photoacid generating monomer)

RN 352455-55-1 HCAPLUS

CN Sulfonium, dimethyl[4-[(2-methyl-1-oxo-2-propenyl)oxy]phenyl]-, salt with trifluoromethanesulfonic acid (1:1), polymer with 1,1-dimethylethyl 2-methyl-2-propenoate and 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

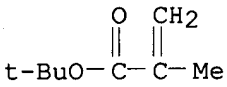
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



CM 2

CRN 585-07-9
CMF C8 H14 O2

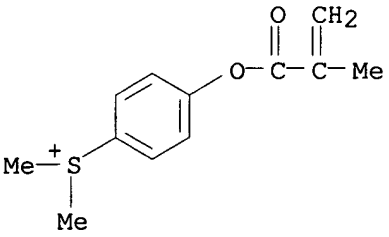


CM 3

CRN 352455-54-0
CMF C12 H15 O2 S . C F3 O3 S

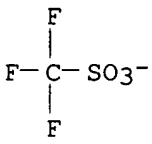
CM 4

CRN 141718-72-1
CMF C12 H15 O2 S



CM 5

CRN 37181-39-8
CMF C F3 O3 S

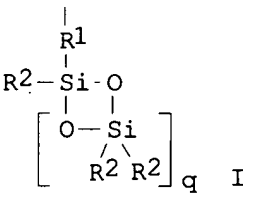


RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L97 ANSWER 29 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:288865 HCAPLUS
DN 134:318681
TI Cyclic siloxane-substituted polymer, photoresist material containing the polymer, and patterning using the photoresist
IN Hatakeyama, Jun; Kaneo, Takeshi; Nakajima, Atsuo; Hasegawa, Koushi; Kubota, Toru; Tonomura, Yoichi
PA Shin-Etsu Chemical Industry Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 29 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2001114835	A2	20010424	JP 1999-300093	19991021
PRAI JP 1999-300093		19991021		

GI



AB The polymer is that substituted with cyclic siloxane group I (R1 = C1-20 alkylene, phenylene; R2 = C1-20 alkyl, haloalkyl, C6-20 aryl; 2≤ q ≤30). The chemical amplified pos.-working photoresist material contains the polymer, an acid-generaing agent, and an organic solvent. The material is applied on an organic film, baked, irradiated through a photomask, optionally baked, and developed by an aqueous alkali solution for dissolving the irradiated portion then the exposed organic film is subjected to O plasma etching for forming a pattern. The photoresist, showing good resistance to O plasma etching, is suitable for fine patterning in manufacture of ultralarge scale integrated circuit.
IC ICM C08F030-08
ICS C08F008-00; C08F212-14; C08F220-18; G03F007-004; G03F007-039;

G03F007-075; G03F007-40; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 38, 76
ST cyclic siloxane substituted polymer photoresist; oxygen plasma etching resistance polymer photoresist; chem amplified pos working photoresist; semiconductor device fabrication chem amplified photoresist
IT Positive photoresists
(cyclic siloxane-substituted polymer for chemical amplified pos.-working photoresist with oxygen plasma etching resistance)
IT Semiconductor device fabrication
(cyclic siloxane-substituted polymer for chemical amplified pos.-working photoresist with oxygen plasma etching resistance for)
IT Polycarbonates, uses
RL: MOA (Modifier or additive use); USES (Uses)
(dissoln. inhibitor; in cyclic siloxane-substituted polymer for chemical amplified pos.-working photoresist with oxygen plasma etching resistance)
IT Etching
(plasma; cyclic siloxane-substituted polymer for chemical amplified pos.-working photoresist with oxygen plasma etching resistance)
IT 1886-74-4 66003-78-9
RL: CAT (Catalyst use); USES (Uses)
(acid-generating agent; in cyclic siloxane-substituted polymer for chemical amplified pos.-working photoresist with oxygen plasma etching resistance)
IT 335316-96-6 **335316-97-7** 335316-99-9 335317-01-6
335317-03-8 335317-04-9 335317-05-0 335317-07-2 335317-08-3
335317-10-7
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(cyclic siloxane-substituted polymer for chemical amplified pos.-working **photoresist** with oxygen plasma etching **resistance**)
IT 7782-44-7, Oxygen, uses
RL: NUU (Other use, unclassified); USES (Uses)
(cyclic siloxane-substituted polymer for chemical amplified pos.-working photoresist with oxygen plasma etching resistance)
IT 24936-68-3, Bisphenol A-carbonic acid copolymer, sru, uses 25037-45-0, Bisphenol A-carbonic acid copolymer
RL: MOA (Modifier or additive use); USES (Uses)
(dissoln. inhibitor; in cyclic siloxane-substituted polymer for chemical amplified pos.-working photoresist with oxygen plasma etching resistance)
IT 102-82-9, Tributylamine 211919-60-7
RL: MOA (Modifier or additive use); USES (Uses)
(in cyclic siloxane-substituted polymer for chemical amplified pos.-working photoresist with oxygen plasma etching resistance)
IT 184031-95-6P 335317-11-8P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(intermediate for monomer; cyclic siloxane-substituted polymer for chemical amplified pos.-working photoresist with oxygen plasma etching resistance)
IT 920-46-7 1576-84-7 84409-40-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(monomer from; cyclic siloxane-substituted polymer for chemical amplified pos.-working photoresist with oxygen plasma etching resistance)
IT 107715-82-2P 110867-24-8P 335316-98-8P 335317-02-7P 335317-06-1P
335317-09-4P 335317-12-9P 335317-14-1P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(monomer; cyclic siloxane-substituted polymer for chemical amplified pos.-working photoresist with oxygen plasma etching resistance)

IT 84540-57-8, Propylene glycol monomethyl ether acetate
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; in cyclic siloxane-substituted polymer for chemical amplified pos.-working photoresist with oxygen plasma etching resistance)

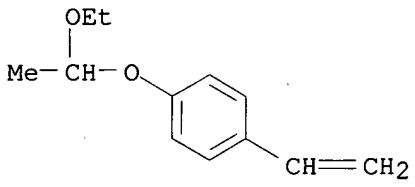
IT **335316-97-7**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(cyclic siloxane-substituted polymer for chemical amplified pos.-working **photoresist** with oxygen plasma etching **resistance**)

RN 335316-97-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-(2,4,4,6,6,8,8-heptamethylcyclotetrasiloxan-2-yl)propyl ester, polymer with 1-ethenyl-4-(1-ethoxyethoxy)benzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

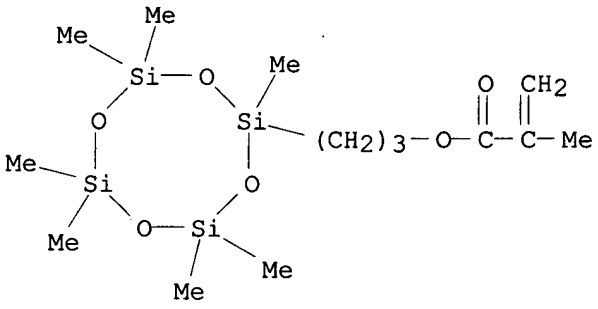
CM 1

CRN 157057-20-0
CMF C12 H16 O2



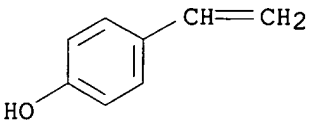
CM 2

CRN 110867-24-8
CMF C14 H32 O6 Si4



CM 3

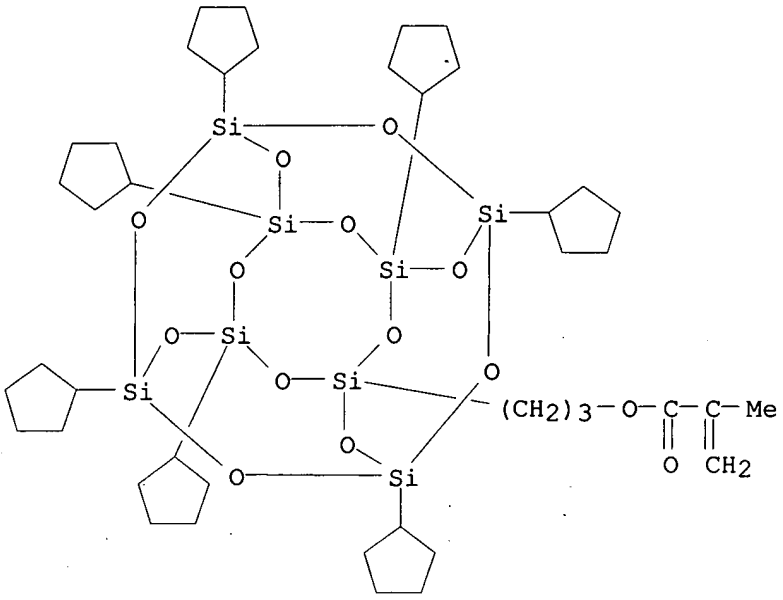
CRN 2628-17-3
CMF C8 H8 O



L97 ANSWER 30 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:610112 HCAPLUS
DN 133:315501
TI Polymer-inorganic high contrast and high sensitivity resists for nanolithography
AU Wu, Hengpeng; Wang, Jianzhao; Gonsalves, Kenneth E.
CS Polymer Program at the Institute of Materials Science, U-3136 & Department of Chemistry, University of Connecticut, Storrs, CT, 06269-3136, USA
SO Materials Research Society Symposium Proceedings (2000), 584(Materials Issues and Modeling for Device Nanofabrication), 121-128
CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English
AB Polyhedral oligo-silsesquioxane methacrylate (POSSMA)/methyl methacrylate(MMA)/tert-Bu methacrylate(TBMA)/CMe3 acrylate(TBA) copolymers were synthesized by solution polymerization Their preliminary lithog.-related properties were studied. The mass ratio of MMA/POSSMA, 85.8/14.2, leads to an x-ray resist with a high contrast of 23.5 without sacrificing the sensitivity(1350 mJ/cm2) which remains comparable to that of standard PMMA. By careful manipulation of components and compns., this generic type of polymer could potentially be used as a DUV or e-beam resist as well.
CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)
ST polymer contrast resist nanolithog polysilsesquioxane
IT Lithography
X-ray resists
(polymer-inorg. high contrast and high sensitivity resists for nanolithog.)
IT Polymers, uses
Silsesquioxanes
RL: DEV (Device component use); NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(polymer-inorg. high contrast and high sensitivity resists for nanolithog.)
IT **302347-58-6 302347-59-7 302347-60-0**
RL: DEV (Device component use); NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(polymer-inorg. high contrast and high sensitivity **resists** for nanolithog.)
IT **302347-58-6 302347-59-7 302347-60-0**
RL: DEV (Device component use); NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(polymer-inorg. high contrast and high sensitivity **resists** for nanolithog.)
RN 302347-58-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

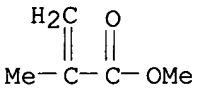
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



CM 2

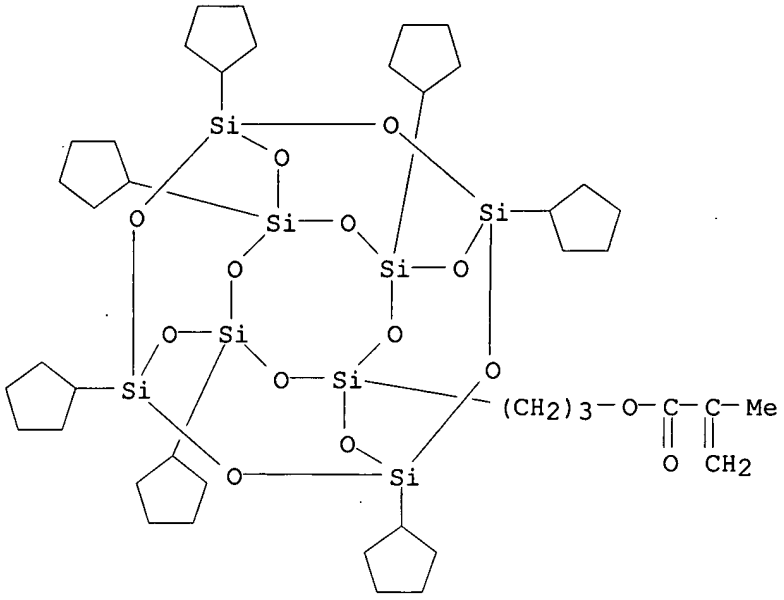
CRN 80-62-6
CMF C5 H8 O2



RN 302347-59-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate and methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

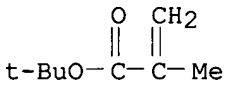
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



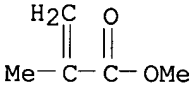
CM 2

CRN 585-07-9
CMF C8 H14 O2



CM 3

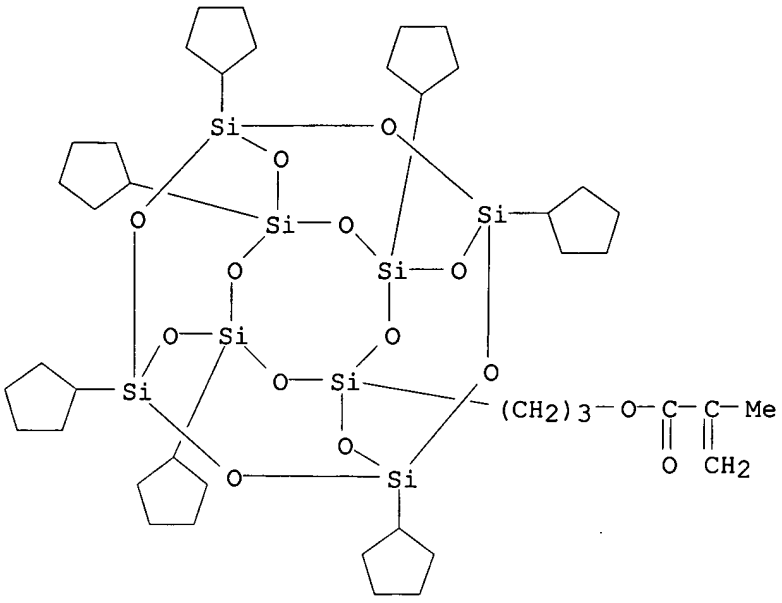
CRN 80-62-6
CMF C5 H8 O2



RN 302347-60-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with 3-(heptacyclopentylpentacyclo[9.5.1.13,9.15,15.17,13]octasiloxanyl)propyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

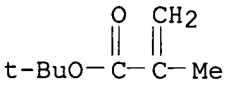
CM 1

CRN 169391-91-7
CMF C42 H74 O14 Si8



CM 2

CRN 585-07-9
CMF C8 H14 O2

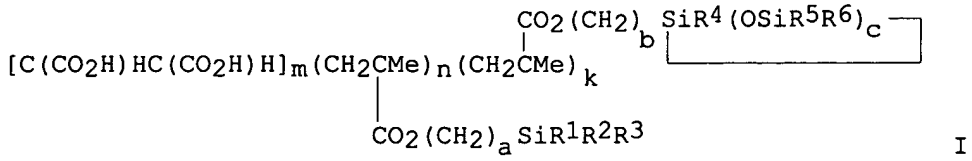


RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L97 ANSWER 31 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1988:104056 HCAPLUS
DN 108:104056
TI Photoresist material from siloxanes with high glass transition temperature and plasma etching resistance
IN Tanaka, Haruyori; Tarumi, Yasuro; Fujino, Fujitsugu
PA Nippon Telegraph and Telephone Public Corp., Japan; Shin-Etsu Chemical Industry Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 62172342	A2	19870729	JP 1986-13270	19860124
	JP 06085080	B4	19941026		
PRAI	JP 1986-13270		19860124		

GI



I

AB The materials contain polymers of the formula I [R1-R6 = H, (substituted) monovalent hydrocarbon residue; m, n ≥1; l ≥0; a, b = 1-10; c = 2-8]. The materials have high O-plasma etching resistance. Thus, a mixture of trimethylsilylmethyl methacrylate, maleic anhydride, and γ-metacryloylpropylheptamethylcyclotetrasiloxane was polymerized with AIBN to give a photoresist material producing high image resolution and having plasma dry etching resistance.

IC ICM G03C001-72
ICS C08F222-02; C08F230-08; G03F007-10

CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)

ST photoresist pattern formation plasma etching; methacrylate siloxane photoresist

IT Siloxanes and Silicones, uses and miscellaneous
RL: USES (Uses)
(acrylic polymer-modified, photoresists from)

IT Resists
(photo-, containing siloxane group-containing acrylic polymers, with plasma etching resistance and high image resolution)

IT **113151-61-4**
RL: USES (Uses)
(**photoresists** from)

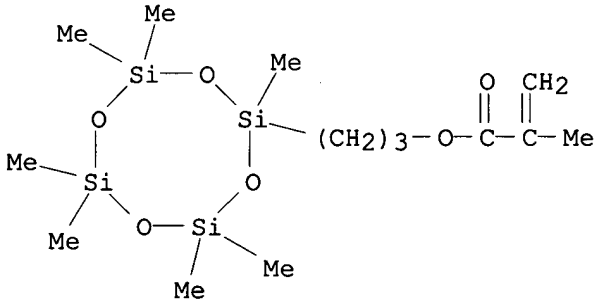
IT **113151-61-4**
RL: USES (Uses)
(**photoresists** from)

RN 113151-61-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-(2,4,4,6,6,8,8-heptamethylcyclotetrasiloxan-2-yl)propyl ester, polymer with 2,5-furandione and (trimethylsilyl)methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

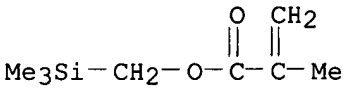
CM 1

CRN 110867-24-8
CMF C14 H32 O6 Si4



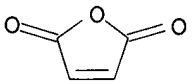
CM 2

CRN 18269-97-1
CMF C8 H16 O2 Si



CM 3

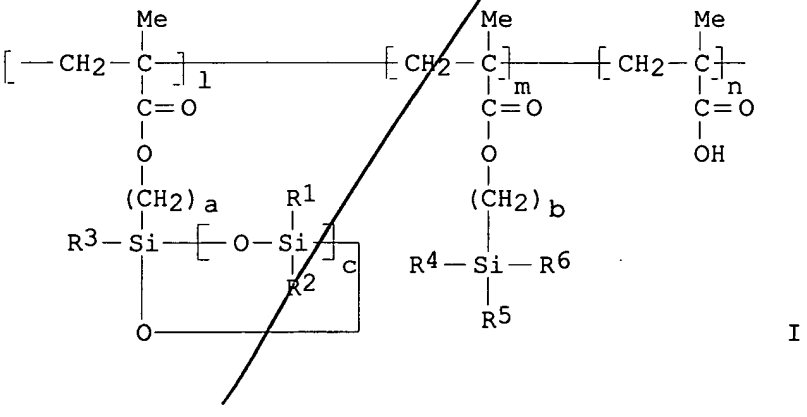
CRN 108-31-6
CMF C4 H2 O3



L97 ANSWER 32 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1987:587446 HCAPLUS
DN 107:187446
TI High energy beam resist and its patterning process
IN Tanaka, Haruyori; Tarumi, Yasuro; Fujino, Fujitsugu
PA Nippon Telegraph and Telephone Public Corp., Japan; Shin-Etsu Chemical Industry Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 62073250	A2	19870403	JP 1985-214086	19850927
PRAI JP 1985-214086		19850927		

GI



I

AB The resist contains a copolymer of the formula I (R1-R6 = H, monovalent hydrocarbon residue; l, a, b = pos. integer; m, n, = 0, pos. integer; c = 2-8). The copolymer may be used as either a pos.- or neg.-working resist; it has a high glass transition temperature (105-120°) and shows improved resistance to O plasma etching. The patterning process uses a 2-layer resist prepared by forming consecutively on a substrate an organic polymer layer and the polymer layer of the formula I. It is effected by imagewise exposure of the heat-crosslinked top layer resist with an electron beam, a far UV light, or an x-ray beam, developing the exposed top layer resist to give a pattern, and then etching the bottom resist layer with the top resist pattern as a mask by using an O plasma to provide a 2-layer resist pattern.

IC ICM G03C001-00
ICS G03C001-00; G03C001-71; G03C005-00; G03F007-00; H01L021-30

CC 74-5 (Radiation Chemistry, Photochemistry, and **Photographic** and Other Reprographic Processes)

ST resist methacryloyloxypropylcyclosiloxane copolymer patterning process

IT Resists
(two-layer, with top layer containing methacryloyloxypropylcyclosiloxane copolymer, for improved resistance to plasma etching)

IT **110867-25-9 110867-26-0** 110867-27-1
RL: USES (Uses)
(high energy beam two-layer **resists** with top layer containing, for **resist** patterns with improved **resistance** to oxygen plasma etching)

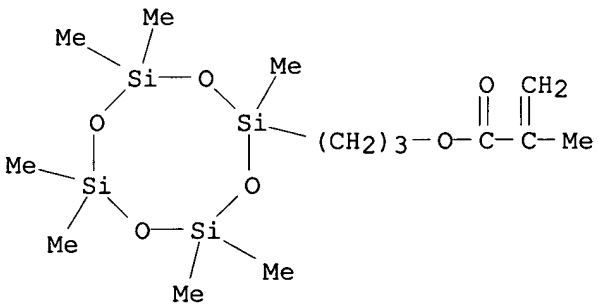
IT **110867-25-9 110867-26-0**
RL: USES (Uses)
(high energy beam two-layer **resists** with top layer containing, for **resist** patterns with improved **resistance** to oxygen plasma etching)

RN 110867-25-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 3-(2,4,4,6,6,8,8-heptamethylcyclotetrasiloxan-2-yl)propyl 2-methyl-2-propenoate and (trimethylsilyl)methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

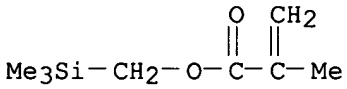
CRN 110867-24-8
CMF C14 H32 O6 Si4



CM 2

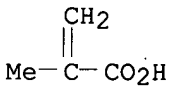
CRN 18269-97-1

CMF C8 H16 O2 Si



CM 3

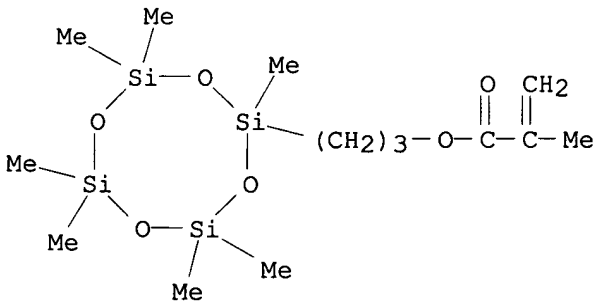
CRN 79-41-4
CMF C4 H6 O2



RN 110867-26-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(2,4,4,6,6,8,8-heptamethylcyclotetrasiloxan-2-yl)propyl ester, polymer with (trimethylsilyl)methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

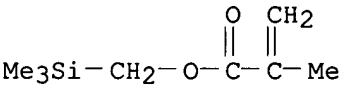
CM 1

CRN 110867-24-8
CMF C14 H32 O6 Si4



CM 2

CRN 18269-97-1
CMF C8 H16 O2 Si



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